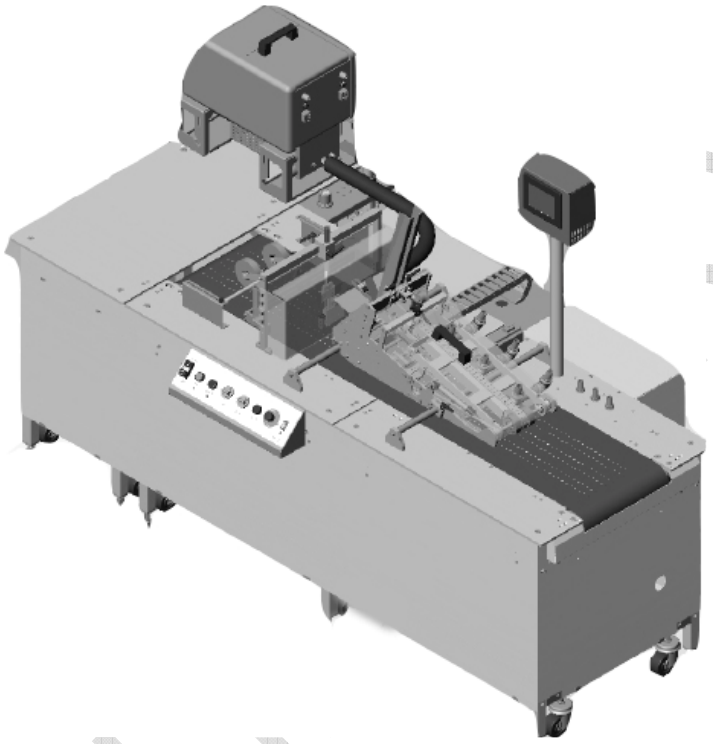
Pitney Bowes
Direct Mail Solutions

APAS - 72

Advanced Product Attaching System



Operator & Service Manual

PRELIMINARY

Pitney Bowes
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
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VERSION HISTORY

The table below summarizes the history of this document as it is published onto the company website(s). It identifies the version, date of issue and revisions and changes.

VERSION	DATE	CHANGES
APAS Operator/Service Manual	9/20/11	Preliminary

REVISION CONVENTIONS-DOCUMENT

VERSION: name of document with revision level of entire document-level designates minor changes that do not require revision change

DATE: date of issue for copying and publication of document.

CHANGES: details of document revision level.

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Special Note:

Some pictures and illustrations may have color, hue and contrast graphically altered for clearity when printing in black and white and may not necessarily reflect the actual color of the product when viewed on compact disk.

PRELIMINARY

DEFINITIONS

1	ON
0	OFF
~	VAC (volts a.c.)
!	WARNING or CAUTION
	HAZARDOUS
	HEAT

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Section I

Installation of the

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Section - I

Installation

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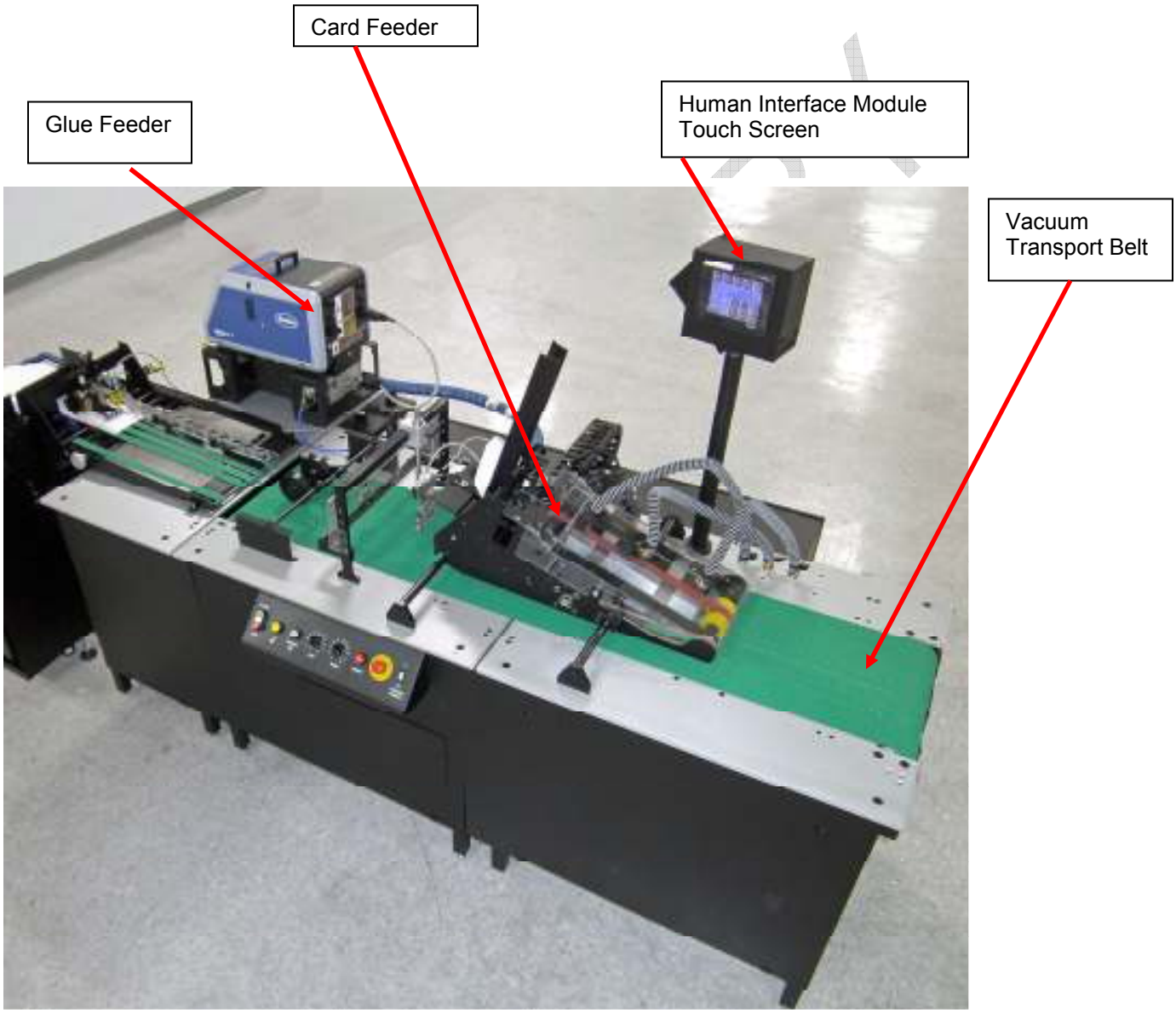
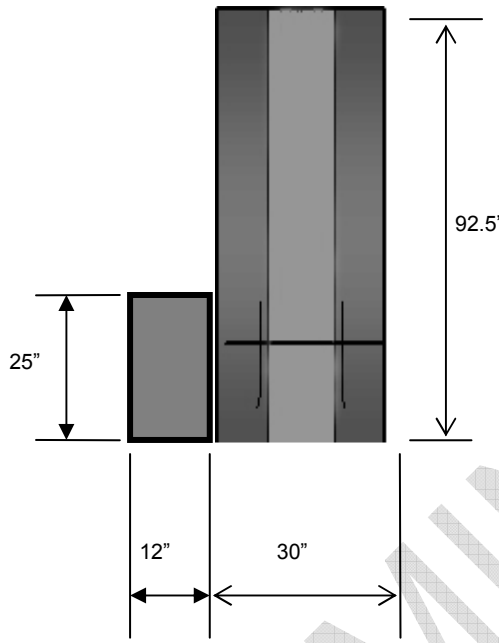


Figure I-1

APAS - 72 Base Floor Plan
(Shown without other conveyors)



Requirements

Floor Space = 27 sq. Ft.

Electrical = 230 V~, 1 PH, 50/60 HZ, 20 A

Air = 2 CFM @ 90 PSI

Vacuum = None

Weight = 1300 # ???

Figure I-2

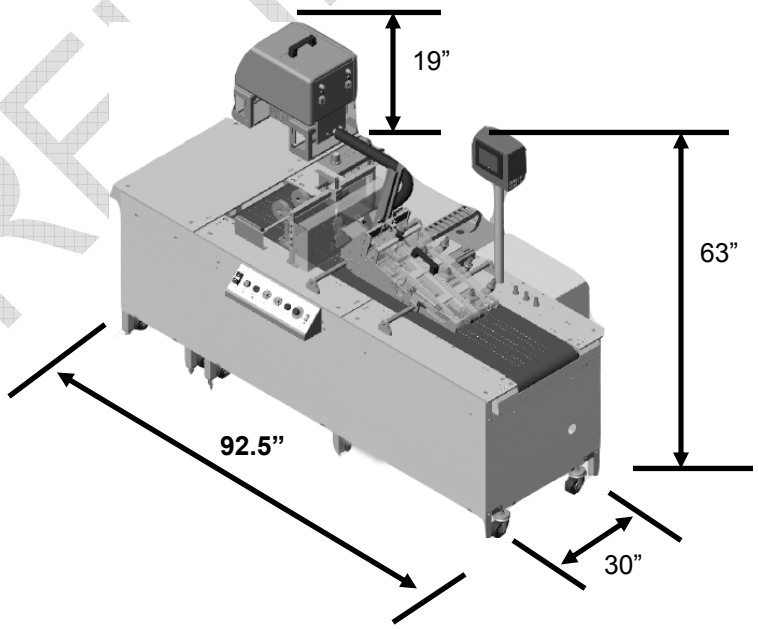


Figure I-3

PRELIMINARY

Environment:

The installation of the APAS is intended for operation in a specific environment. See Operating Environment Table below for details.

Operating Environment Table

ITEM		SPECIFICATION
Environmental Conditions	Ambient Operating Temperature	0 to 55º C
	Storage Temperature	-25 to 85º C
	Ambient Operating Humidity	30% to 95% RH (with no condensation)
	Ambient Storage Humidity	5% to 95% RH (with no condensation)
	Pollution Level	Pollution level 1 (conforming to JIS B3501)
	Corrosion Gas	There must be no combustible or corrosive gas.
	Operating Altitude	2,000 m above sea level or lower
Mechanical Operating Conditions	Vibration Resistance	Conforming to JIS B 3502: 10 to 57 Hz with single-amplitude of 0.075 mm 57 to 150 Hz with fixed acceleration of 9.8 m/s² 10 sweeps each in X, Y, and Z directions (sweep time: 1 octave/min)
	Shock Resistance	Conforming to JIS B 3502: Peak acceleration of 147 m/s ²twice for 11 ms each in the X, Y, and Z directions
Installation Requirements	Ground	Ground to 100Ω max.
	Cooling Method	Natural cooling

PRELIMINARY

Figure I-3

Installation: Positioning the Components

Once the APAS base has been removed from the shipping container perform the following:

1. Inspect the location where the machine is to be set up.
(Note: The manufacture recommends that the area be a relatively flat and smooth concrete or hard wood surface, similar substrates are acceptable. The area should be free of holes, divots, loose floorboards, etc. and not subject to retaining moisture from water seepage.) (Warning: In the event the floor does not meet the recommended requirements, seek an alternate location or reschedule the installation after repairs to the floor have been completed.)

2. The glue tank feeder and its associated mounting (removed from normal operating position during shipment) must be re-mounted. See figure I-4.

Figure I-4

a. Re-install both gusseted style brackets (packed in separate container) onto left side of APAS base at in-feed end of conveyor. Use Allen socket head screws (4) provided. Note: Tapped holes are provided for mounting.

b. Re-mount anodized glue tank mounting plate (shipped with glue tank-strapped to conveyor bed) to above brackets using provided Allen socket countersunk screws (4).

c. Re-mount glue tank to mounting plate using Allen socket head screws and hex nuts (4 each) provided.

d. Re-attach all electrical, pneumatic and product piping/tubing.

PRELIMINARY

3. The touch screen assembly (packed in separate container) must be re-mounted. See figure I-5.

Figure I-5

a. Pull the (2) cables (power and communication) associated with the touch screen from the APAS base and run through the post into touch screen enclosure. Enclosure access panel must be opened.

b. Install post/enclosure onto APAS base (pipe thread connection).

c. Insert power and communication termination plugs into proper enclosure mounted socket and close access panel.

4. The side guides (left and right hand) must be re-attached to the material feeder (i.e. card feeder). See later section for details.

Installation: Electrical Setup Connections

5. Inspect the line current at the point where the power cable of the machine is to be plugged in. (Note: Conventional wall sockets, ceiling line drops and D-Boxes should be free of cracks, rust, visible signs of heat stress and flash marks.) (Special Note: For installations in Europe check the condition of the voltage converter box or other voltage reducing device that may be in use. In the event of a line voltage inspection failure, report your findings to the person or persons in charge of the building and postpone the installation until corrections are made.)

6. Check the line voltage to ensure that the minimum and maximum requirements are present.

7. Check to see what volt value the transformer is pinned out to at the voltage selection block, see figure I-6. If the volt value is different from the line voltage you checked in step 3, the transformer will need to be re-pinned to match. This can be done by:

a. Using a medium tip Philips head screwdriver, loosen the retaining screw in the connection block that the “Dark Gray Voltage Select Wire” is currently connected to, see figure I-6.

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Caution: The "Dark Gray Voltage Select Wire" is located on the side of the connect block next to the "Volt Value Labels". It is the only wire that occupies this side of the block. Do not move or in any way re-locate any of the stripped or gray wires from the side of the connect block opposite the "Volt Value Labels".

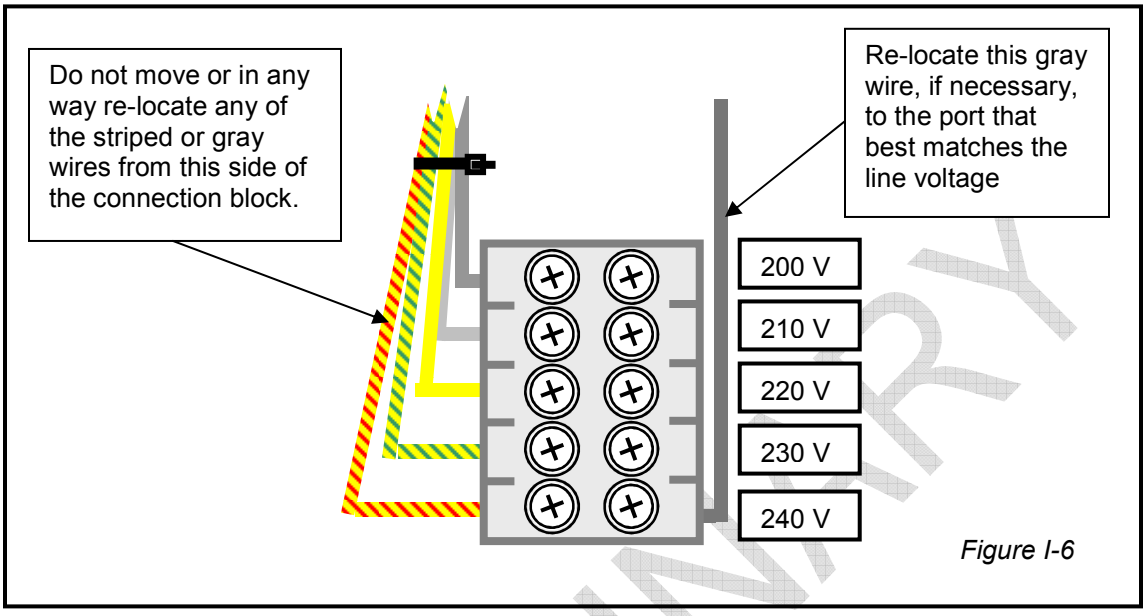
Do not move or in any way re-locate any of the striped or gray wires from this side of the connection block.
Re-locate this gray wire, if necessary, to the port that best matches the line voltage
200 V
210 V
220 V
230 V
240 V

Figure I-6

b. Insert the "Dark Gray Voltage Select Wire" in the connection port that is labeled for the best match for the line voltage discovered in step 3, see figure I-7. Secure by tightening the retaining screw using a medium tip Philips head screwdriver. **Caution:** Do not over tighten.

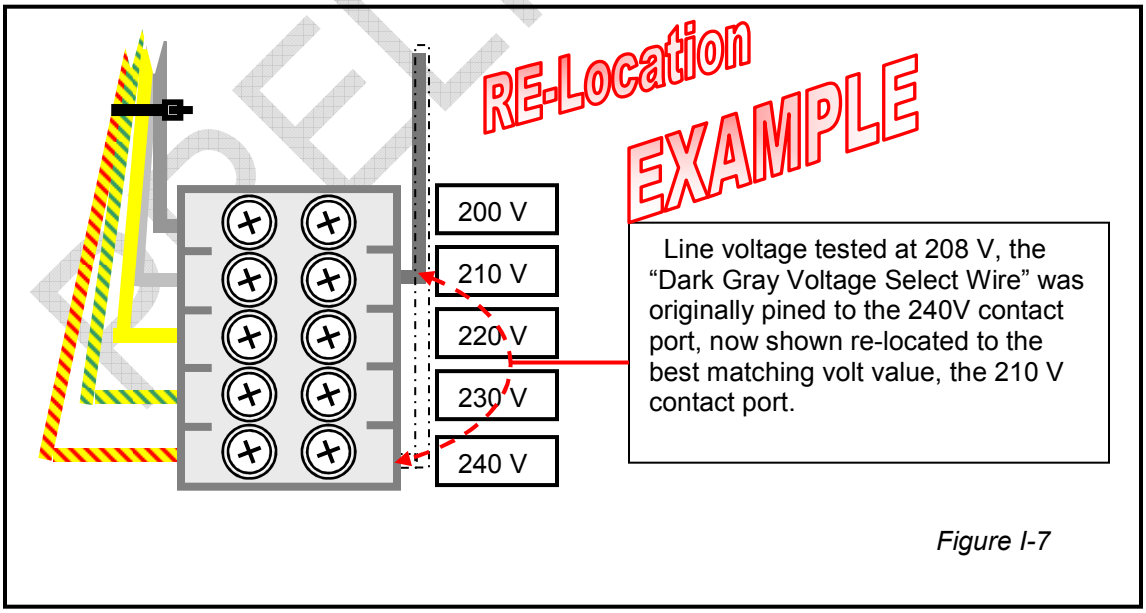
RE-Location
EXAMPLE
200 V
210 V
220 V
230 V
240 V
Line voltage tested at 208 V, the "Dark Gray Voltage Select Wire" was originally pined to the 240V contact port, now shown re-located to the best matching volt value, the 210 V contact port.

Figure I-7

PRELIMINARY

Installation: Leveling the APAS Base

8. Position the APAS base in the designated location then lower the leveler pads to raise the base to a comfortable operating height, see figure I-8.

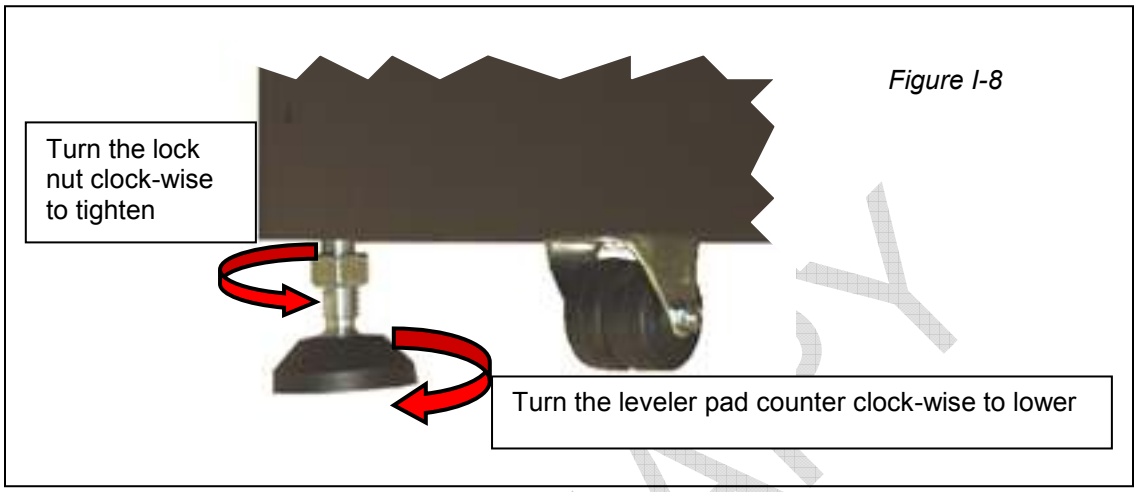

Figure I-8

9. Place a level in the center of the APAS base and adjust the leveler pads as needed to level the machine at the desired height. Once the machine has been leveled, tighten the leveler pad lock nuts, see figure I-9.

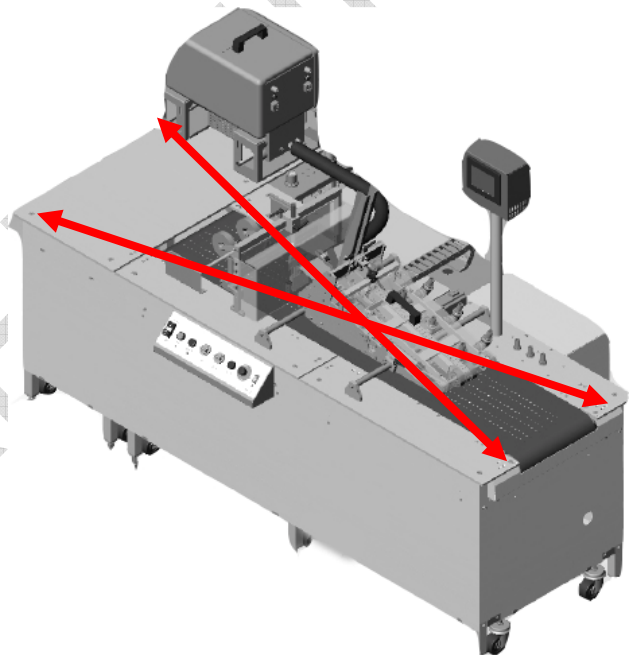

Figure I-9

10. Check entire machine for any items that may be obstructing proper operation. This includes packing/shipping components.

11. Plug the power cables for the glue applicator and the APAS system (remove front panel to access) into the proper sized site receptacle.

⚠ (**Warning:** To avoid possible damage to the machine and prevent possible injury, keep the work areas free of all packing material and other debris.)

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Section II

Safety Features & Warnings

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Section II

Safety Locks and Warning Stickers

All APAS's have been designed with safety locks on all doors to cabinets containing moving parts as well as caution or warning labels or stickers to safeguard persons operating and or working on or around this equipment. These are as follows:

All doors to cabinets containing moving parts are equipped with a mechanical lock that requires the use of a flat blade screwdriver to open.

The main power or electrical box door is equipped with a safety lock that requires a specific key to open.

General Warning
Symbol indicating possible safety hazards. Found posted on the left front service door of the Attacher base above the door lock

Figure II-1

Label shown at actual size

Shock Hazard
Symbol indicating possible shock hazard. Found posted above the lock of the service door on the Electrical box mounted on the backside of the Attacher base.

Figure II-2

Label shown at actual size

Mechanical Warning
Symbol indicating pinch hazard. Found posted on the mounting plate of the vacuum belt, drive motor.

Figure II-3

Label shown at actual size

Note: This symbol ⚠ appears as a visual alert in the text of this manual next to written warnings regarding possible safety issues and or possible machine damage that may occur as a direct result of failure to follow specific instructions as written.

PRELIMINARY

(Note: The safety devices, door locks, warning labels and stickers are installed by the manufacturer to safeguard all persons operating and or working on or around the APAS. Removing, altering or disabling any of these items will void any and all warranties, either real or implied, purchased or offered with the APAS. All companies connected with the manufacturing, promotion and sale of the APAS shall be held harmless for any and all injuries and damage in the event the safety devices, door locks, warning labels and stickers are removed, altered or disabled)

In addition to the safety devices and warnings installed on the APAS by the manufacture, the following recommendations for safe operation and maintenance of the APAS are as follows:

- Any persons designated to operate, work on or near the APAS must be fully trained by a factory-authorized representative.
- Do not operate or perform any type of maintenance on the APAS while under the influence of drugs or alcohol.
- Do not operate or perform any type of maintenance on the APAS in or around freestanding water.
- Do not wear loose or baggie fitting shirts, shirts with bellowing sleeves, bracelets, rings, necklaces, neckties or other loose apparel that may come into close proximity with moving parts of the machine.
- Do not place any items near or over the “Emergency Stop Switches” that might inhibit or obstruct line of sight or access to the Emergency Stop Switches. The “Emergency Stop Switches” must be clearly visible and accessible at all times.

PRELIMINARY

- Ware protective safety eyeglasses or goggles and use a particle mask or similar device when cleaning off the APAS with compressed air. Alert all other persons in the area to stand a minimum of thirty (30) feet from the area where compressed air is put to such use.

- Hearing protection is not required for safe operation of the APAS. Typically, decibel levels have been found to be less than 85 decibels in machines properly maintained and in good operating condition.

- All persons having hair greater than shoulder length who operate, work on or near the APAS should keep their hair pulled back in ponytail fashion then pinned up or otherwise contained to the top of their head or confined under the back of their shirt.

- Turn off the main power to the APAS before opening any of the service doors for general cleaning and or general maintenance. Follow the "Lock Out Procedures" as stated on page 16 for extensive repairs involving disassembly of the machine either in whole or in part or replacing any of the electrical components.

- Any persons working near any of the electrical motors or pump motors of the APAS should use caution. Electrical motors and product heaters give off heat, contact with or exposure to bare skin may result in burns.

- The APAS was designed to feed and transport paper only. Do not attempt to feed and / or run materials made of or containing glass, metal, wood, plastics, liquids, foods, powders, gasses, explosives or toxic and hazardous chemicals on the APAS. (Note: The manufacture recognizes and acknowledges that the APAS is capable of successfully running and / or transporting compact disk and audio cassettes inserted into paper envelopes, however the manufacture and other companies connected with the promotion and sale of the APAS do not assume any responsibility for any damage to the APAS or product and shall be held harmless for any damages and or injuries resulting in this practice.)

Special Advisement:

The manufacturer and other companies connected with the promotion and sale of the APAS shall be held harmless for any and all injuries sustained to any person or persons as a result of failure to comply with the recommendations for safe operation and maintenance of the APAS as shown and / or described herein.

PRELIMINARY

Machine Lock Out Procedure

Before beginning extensive repairs involving disassembly of the machine either in whole or in part, performing general maintenance or replacing any of the electrical components, the machine must be locked out of service to ensure that power will not be restored to the machine while the work is being performed. To lock a machine out of service, perform the following:

Warning: The following procedure is published herein for the expressed purpose of providing a safe work environment conducive to persons performing repairs and or maintenance and or general cleaning of the APAS and or any other components connected to or associated with the APAS. This procedure must be followed without exception to ensure the safety of any person or persons performing the previous stated task.

The manufacturer and other companies connected with the promotion and sale of the APAS shall be held harmless for any and all injuries sustained to any person or persons and or damage to the APAS and or any other components connected to or associated with the APAS as a result of failure to comply with the “Lock Out Procedure”.

1. Turn the main power switch to the off position.
2. Disconnect the power cable from its source by performing the following:
    a. Follow the main power line from the machine back to the receptacle or source of supplied power and disconnect it at the source.
    b. Place the plug connecter close to the machine in such a position that will remain in your field of vision while repairs or maintenance is being performed.
3. Notify all other persons in the area where the work is being performed that the machine will be out of service, especially if the work you are performing requires you to be crouched behind or beside the machine or in some other way obscured from the sight of other persons in the area.
4. When the work has been completed reconnect the plug to the power source and then test cycle the machine to ensure that power has properly restored and the machine is fully functional.
5. Notify all other persons in the area that the machine is fully operational and that the drive motors will become enabled when the power switch is placed in the on position.

PRELIMINARY

Suggested Lock Out Devices

The following are some suggested devices specifically designed to provide a greater degree of safety when locking out the power supply to a machine. These devices can be purchased from most safety equipment suppliers and vendors.

Lock Box designed for power cord plug connectors, commonly used in combination with a key style padlock.

Note: Appearance of Lock-Out devices may vary depending on vendor

Figure II-4

Breaker Lock designed for use inside electrical breaker boxes, commonly used in combination with a key style padlock.

Note: Appearance of Lock-Out devices may vary depending on vendor

Figure II-5

PRELIMINARY

Warning Alert tags, commonly used in combination with all lock out devices.

Front View of Lock Out Tag

Back View of Lock Out Tag

Figure II-6

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Section III

General Set-Up

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Section – III

This APAS system is comprised of a belt conveyor, a gluing applicator and a material feeder (i.e. card feeder) and is designed to run off line or in line with most feeders, inserters, inkjets and conveyors.

APAS - 72 SETUP

1. Place a piece of the material (that is to be run under the glue applicator) onto the vacuum transport belt just beneath the nip rollers upstream of the glue applicator. Adjust guide rollers per the following: See figure III-1.

   a. Loosen thumbscrews on each guide roller bracket to locate rollers across the conveyor.

   b. Loosen thumbscrew on both side mounting brackets to move guide rollers back-and-forth along conveyor to adjust guide rollers so material piece hits rollers and vacuum belt at same time.

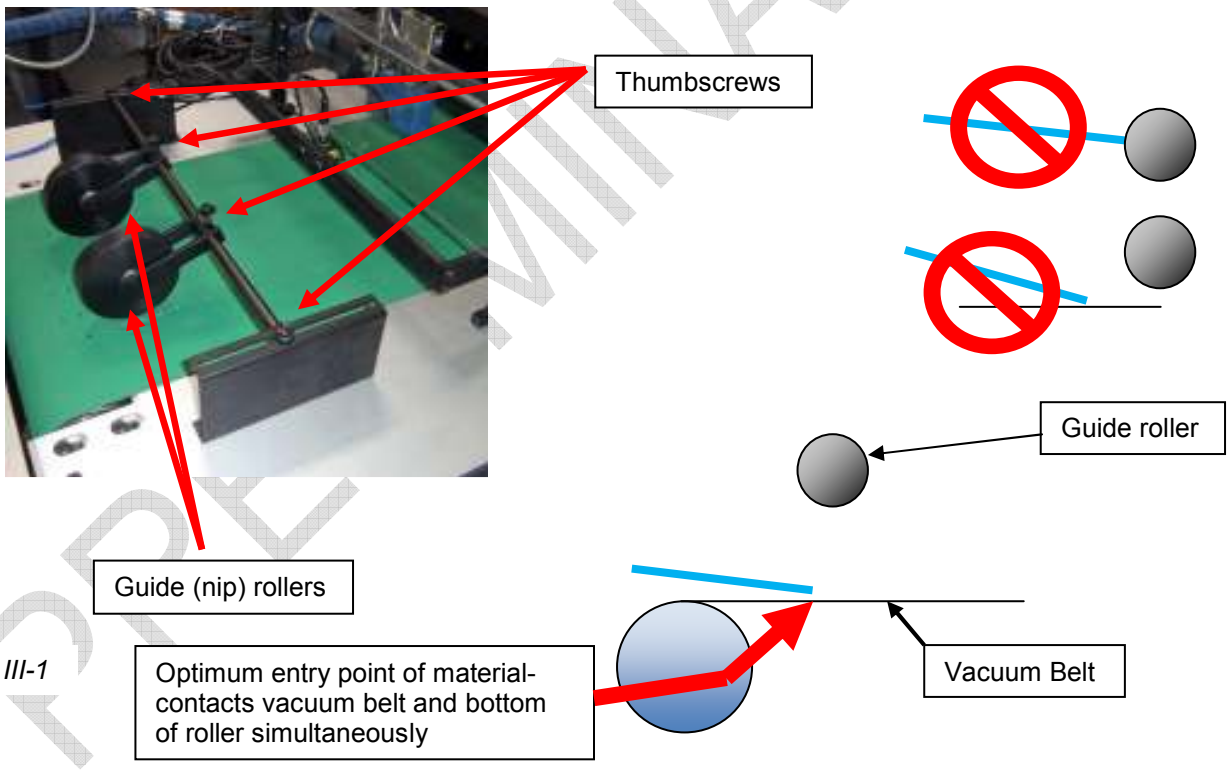

Thumbscrews
Guide roller
Guide (nip) rollers
Optimum entry point of material-contacts vacuum belt and bottom of roller simultaneously
Vacuum Belt

Figure III-1

Paper Sensor Adjustment- Main Conveyor (APAS)

The paper sensors are located at the “In-Feed” end of the APAS base above the vacuum belt and upstream of and on the centerline of the glue nozzle and material feeder (card). These sensors are set to detect and confirm the presence of paper before passing under the glue applicator tip and material feeder. These sensors do not normally need to be adjusted for each job, once the setting has been made, it should remain set unless otherwise disrupted. In the event the settings have been disrupted, perform the following:

PRELIMINARY

1. Position the sensor directly above the vacuum belt by turning the thumbscrew in the sensor mounting block in a counter clock-wise direction and sliding the sensor assembly across the sensor support bar. Once the desired position is acquired, tighten the thumbscrew in the sensor mounting block in a counter clock-wise direction.

2. Place a blank piece of white paper on the vacuum belt directly under the paper sensor.

3. Using a small flat blade screwdriver, remove the pan head screw in the plastic cover located on the sensor next to the electronic cable connection, see figure III-1. (Note: Depending on the APAS model, this sensor may have a detachable screw type cable connection or may have a hard wire cable connection. The sensitivity adjustments for both models are identical.)

4. Set the “Light / Dark” pot setting; using a small flat blade screw driver, slowly and very carefully turn the pot setting, located next to the electronic cable connection, in a counter clock-wise direction until full range of motion is felt, see figure III-2 or -3. (Note: If this adjustment is performed correctly, the screw driver slot in the pot setting should be pointing towards the “DO” in the range scale next to the pot setting.)

   ⚠ (**Warning:** The stop point of this pot setting can be damaged if excessive force is applied.)

5. Set the “Gain” pot setting by performing the following;

   a. Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a counter clock-wise direction until fill range of motion is felt, see figure III-2 or -3. (The red LED indicator light should be off at this point.)

   b. Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a clock-wise direction until the red LED light comes on, continue turning the pot setting in a clock-wise direction another half turn.

6. Return the plastic cover, removed in step (3) to its original position.

PRELIMINARY

Remove the plastic cover from the sensor to gain access to the pot settings.

(Sensor shown has detachable electrical cable fitting)

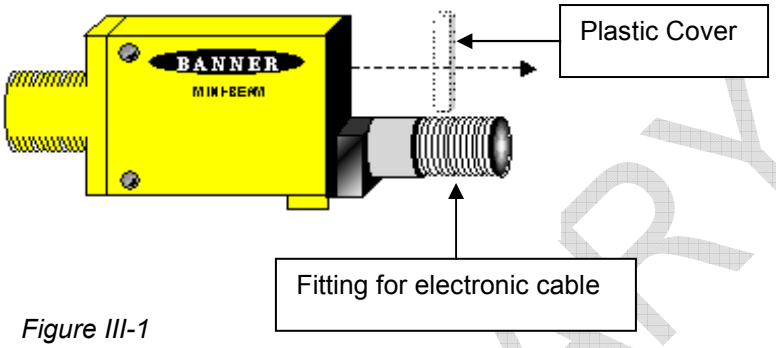
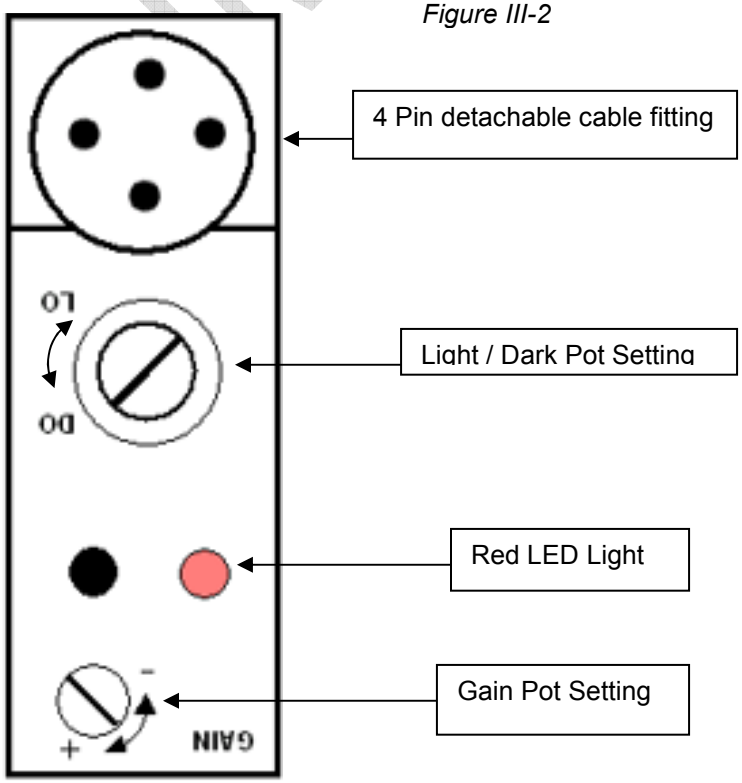


Figure III-1

View of Detachable Cable style Sensor

(Shown in actual orientation as it appears on the APAS base)

Figure III-2



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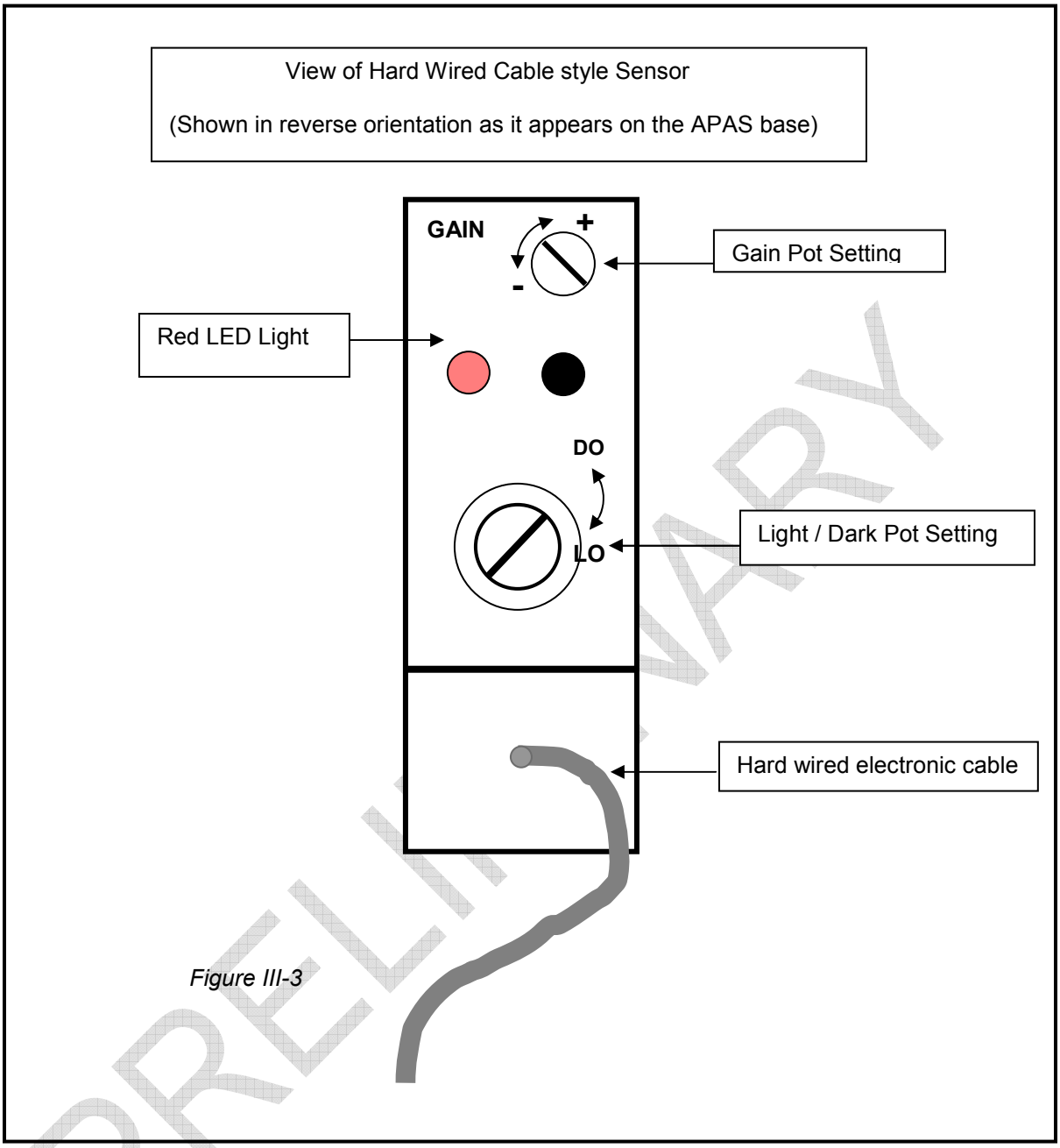


Figure III-3

PRELIMINARY

Material Feeder (CARD) Set-Up

1. Loosen the ratchet handles and the thumb lock knob, found on each of the material side guides (The ratchet handle at the top of the clamp, aligns the side guide vertically, the thumb lock knob at the back of the clamp, aligns the side guide horizontally. See figure III-4.

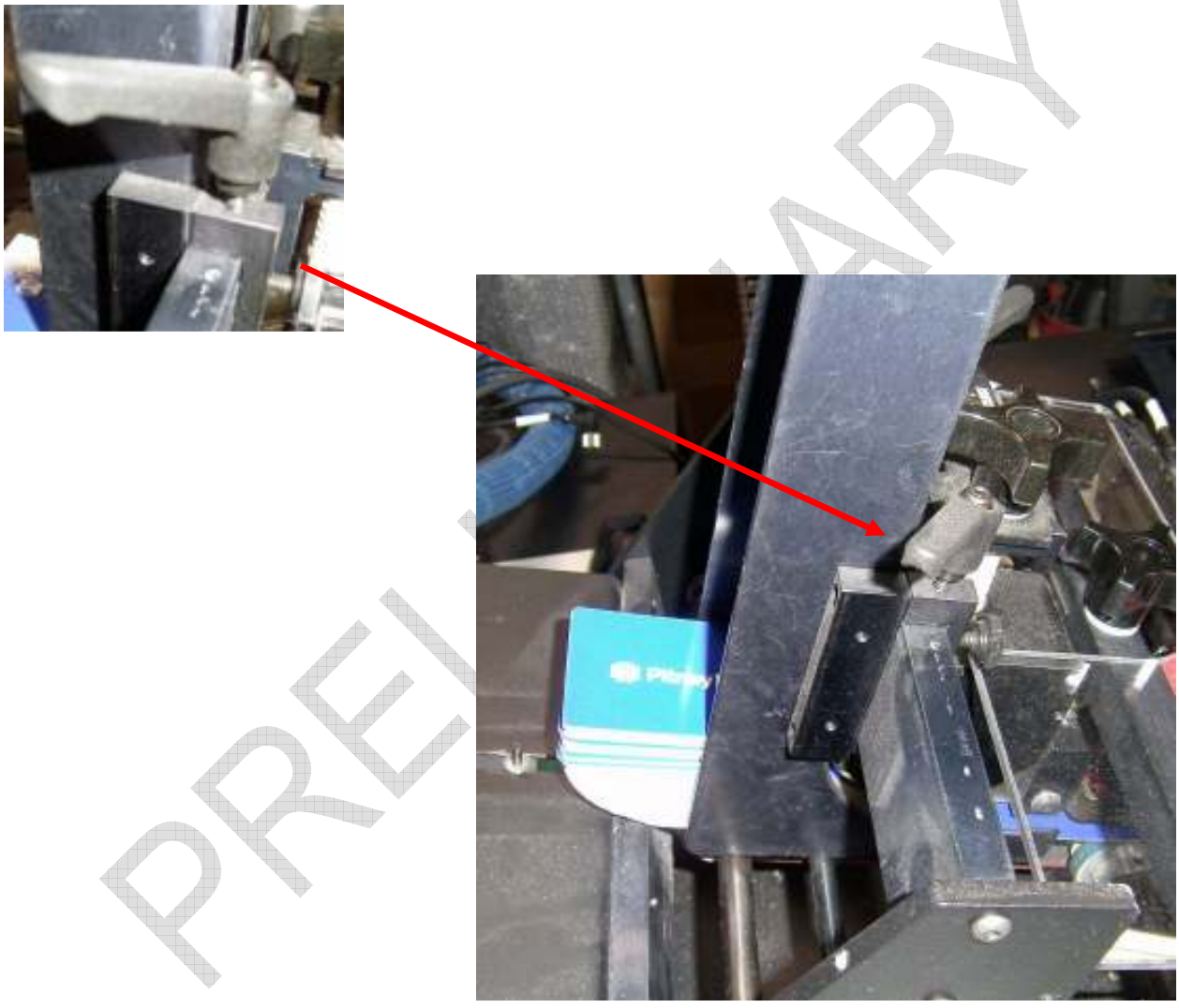


Figure III-4

PRELIMINARY

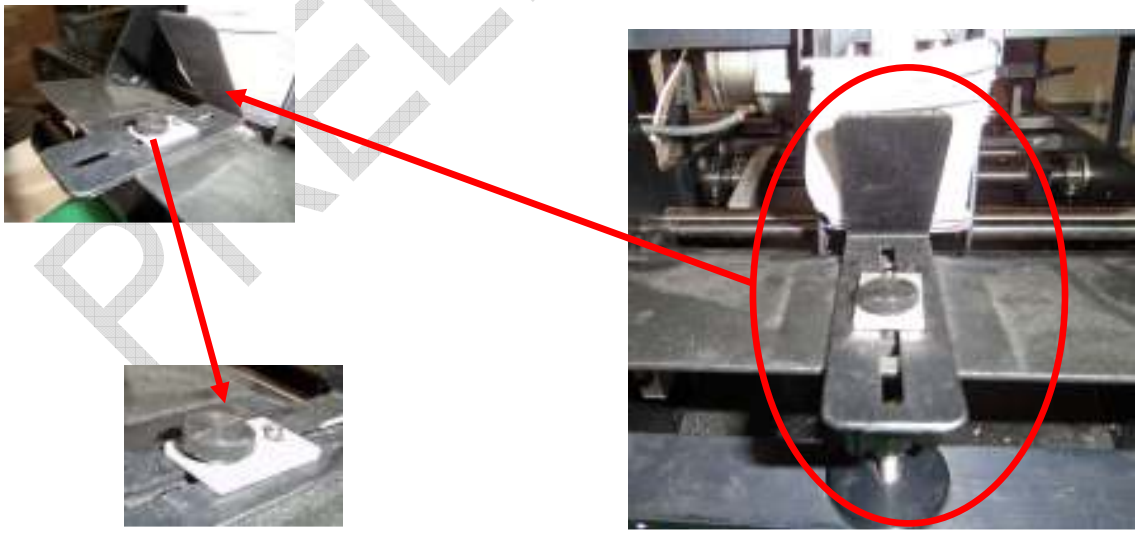
2. Mark the center of the card and place the marked piece on the feeder friction belt, see figure III-5.

3. Align the mark with the center of the friction belt of the material separator, see figure III-5.

Figure III-5

4. Set the side guides of the feeder, to the width of the material to be run. Allow approximately 1/8" of space between the material and the material side guides to enable the material can slide freely to the friction belts of the feeder.

5. Set the "Wedge" under the material to obtain the proper stack angle for feeding, see figure III-6. The variables of this setting are dependent on the characteristics of the material. (Helpful Tip: The more the wedge is pushed under the material, the less critical the material separator setting becomes. If the wedge is placed out from the material, the separator setting will become more critical)

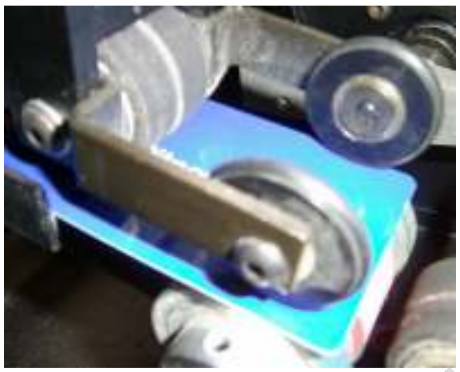


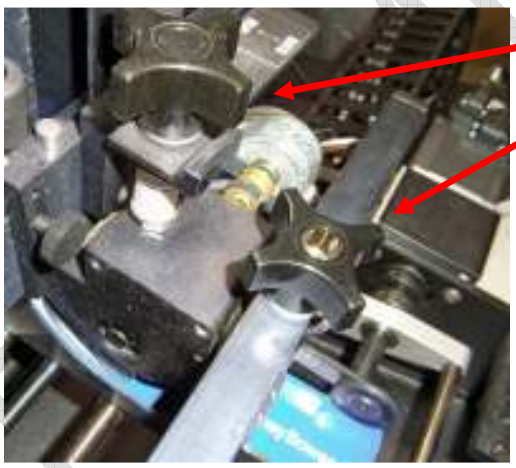
LOOSEN THUMB LOCK KNOB TO ADJUST THE BACK WEDGE

Figure III-6

PRELIMINARY

6. Set the height of the “Material Separator” to allow the thickness of one (1) piece of material to pass under it. To do this, turn the adjustment knob clock wise to raise the separator, counter clock wise to lower the separator, see figure III-7. (Note: There should be a little resistance felt by hand, when the material is directly under the material separator, when this is properly set) (Helpful Tip: The thinner the material is, the more critical this setting is.)





Material Separator Knob, turn counter clock-wise to lower, clock-wise to raise.

Figure III-7

PRELIMINARY

7. Fill the feeder with material. The feeders are designed to hold a stack of material up to eighteen (18) inches in height or fifteen (15) pounds in weight, depending on the characteristics of the material.

8. Test the set up by pressing the blue “Start” button located at the left end of the control panel to activate the feeder. Then press the yellow “Jog” button, found on the control panel to advance one piece at a time. Check the pieces as they feed to ensure proper separation has taken place. See figures III-11 & 13 for details.

Paper Sensor Adjustment – Card Feeder

The paper sensor is located inside the feeder, beneath the elevator belt. This sensor is set to detect and confirm the presence of paper (card) before passing onto the card feeder's vacuum belt. This sensor does not normally need to be adjusted for each job, once the setting has been made, it should remain set unless otherwise disrupted. In the event the settings have been disrupted, perform the following:

1. Place a blank piece of white paper on the elevator belt directly above the paper sensor.

2. Set the "Light / Dark" pot setting; using a small flat blade screw driver, slowly and very carefully turn the pot setting, located next to the electronic cable connection, in a counter clock-wise direction until full range of motion is felt, see figure III-8. (Note: If this adjustment is performed correctly, the screw driver slot in the pot setting should be pointing towards the "DO" in the range scale next to the pot setting.)

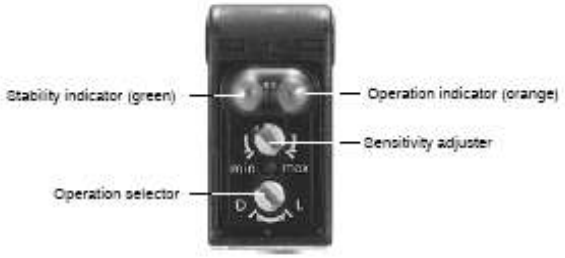
   ⚠ (**Warning:** The stop point of this pot setting can be damaged if excessive force is applied.)

3. Set the "Gain" pot setting by performing the following;

   a. Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a counter clock-wise direction until fill range of motion is felt, see figure III-8. (The green LED indicator light should be off at this point.)

   b. Using a small flat blade screw driver, slowly and carefully turn the pot setting located furthest from the electronic cable connection, in a clock-wise direction until the green LED light comes on, continue turning the pot setting in a clock-wise direction another half turn.

View of Hard Wired Cable style Sensor



OMRON E3Z-D61

Figure III-8

PRELIMINARY

Control Panel and Switch Operation

APAS - 72 Base Operator Control Panel

MAIN MENU

DESCRIPTION	FUNCTION
Mode Menu	PRESS TO ACCESS THE **Mode MENU** SCREEN
Divert Menu	PRESS TO ACCESS THE DIVERT SETTINGS
Feeder Menu	PRESS TO ACCESS THE **FEEDER MENU** SCREEN
Glue Menu	PRESS TO ACCESS THE **GLUE MENU** SCREEN
Maint Menu	PRESS TO ACCESS THE **MAINTENANCE** SCREEN
Feeder Off	PRESS TO TOGGLE FEEDER ON OR OFF
Fault Reset	PRESS TO RESET FAULTS
Start New Job	PRESS TO START A NEW JOB
Glue Off	PRESS TO TOGGLE GLUE ON OR OFF
Vacum Off	PRESS TO TOGGLE VACUUM ON OR OFF ON CARD FEEDER
One Shot	PRESS TO FEED AND SINGLE CARD (ALSO USED TO STAGE A PIECE)

PRELIMINARY

Setting and Re-Setting the Emergency Stop Switch

Figure III-10

Set Emergency Stop Switch by pushing downward

Re-Set Emergency Stop Switch by twisting to the right

⚠ **Warning:**

The Emergency Stop Switches Must be Visible and Accessible at all times

Special Note: Pursuant to Community Legislation on Machinery, Comments on Directive 98/37/EC 1.2. Controls and 1.2.1 Safety and reliability of control systems

The “E-Stop” button / buttons found on the APAS Base are by design in compliance to meet and / or exceed the mandates and requirements as stated in the Community Legislation on Machinery, Comments on Directive 98/37/EC.
By manufacture design the E-Stop buttons are to be used in the event of an emergency, once the E-Stop button has been depressed a delay of 5 to 7 seconds must elapse before the E-Stop button can be re-set. Once the E-Stop button has been re-set another delay of 5 to 7 seconds must elapse before normal machine operation can be resumed. In the event the delays are not strictly observed before attempting to resume normal machine operation, a conflict in the logic program may result causing an operator to power down the system and re-boot to clear the conflict before resuming normal machine operation.

For a selective stop to interrupt normal machine operation, depress the “Black” control Stop button. The machine can be re-started without delay at the operator’s discretion. See figure III-12.

PRELIMINARY

APAS Base Controls

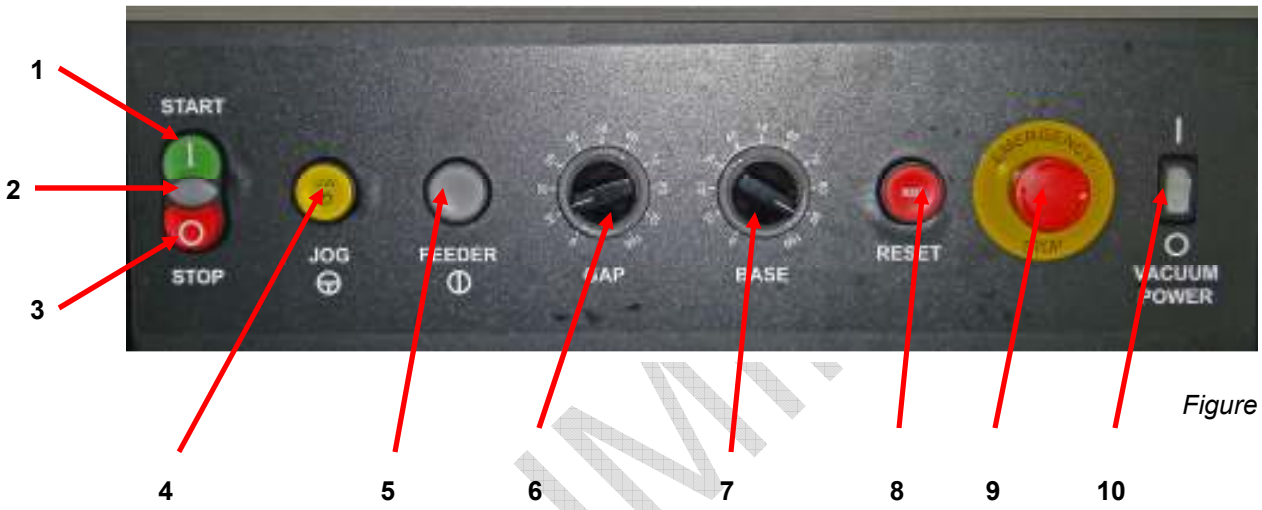


Figure III-9A

1 – Run Button: When pressed machine base will start

2 – Status Indicator: Solid Lamp (running condition), Rapid Flash (Material jam on base), Slow Flash (Feeder jam or out of material)

3 – Stop Button: When pressed machine base will stop

4 – Jog Button: When pressed the base will run at a slow speed

5 – Feeder Button: When pressed the product feeder will run while the base is running (Button is illuminated when on)

6 – Gap Control: This sets the gap between the product being fed

7 – Base Control: This sets the speed of the base

8 – Reset Button: Pressing this button will reset errors to the base

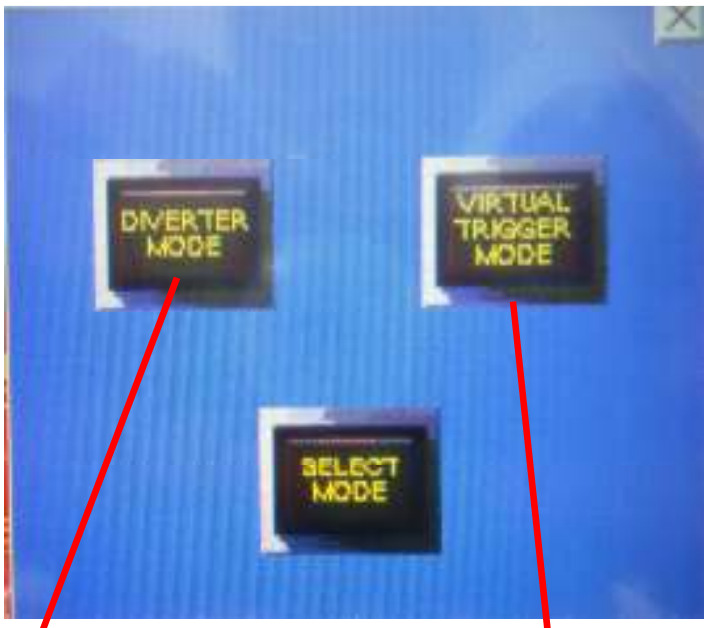
9 – Emergency Stop Button: Press this button when an immediate stop to the base is required.

10 – Vacuum Power Switch: Turns on the vacuum pump

PRELIMINARY

1. **MODE MENU Screen** See figure III-16.

MODE MENU



MODE SCREEN

figure III-16

DIVERT MENU

VIRTUAL TRIGGER MENU

2. **FEEDER MENU Screen**. See figure III-17.

FEEDER MENU

figure III-17

DESCRIPTION	FUNCTION
ONE SHOT	PRESS TO FEED ONE CARD (ALSO USED FOR STAGING THE CARD)
FAULT RESET	PRESS TO RESET ERRORS
FEEDER OFF	PRESS TO TOGGLE CARD FEEDER ON or OFF
MAIN SCREEN	PRESS TO ACCESS THE **MAIN** SCREEN
# OF CARDS	PRESS TO SELECT ONE OR TWO CARDS TO BE FED
DOUBLE PERCENT	PERCENTAGE OF CARD THAT IS SEEN BEYOND THE CARD LENGTH BEFORE DECLARING AN ERROR
FORM LENGTH	THE LENGTH OF THE FORM BEING FED
CARD LENGTH	THE LENGTH OF THE CARD BEING FED
1ST CARD TO EDGE	THE DISTANCE FROM THE LEAD EDGE OF THE FORM TO WHERE THE CARD IS PLACED
2ND CARD TO EDGE	THE DISTANCE FROM THE LEAD EDGE OF THE FORM TO WHERE THE 2ND CARD IS PLACED (IF USED)

3. **GLUE MENU** SCREEN. See figure III-19.

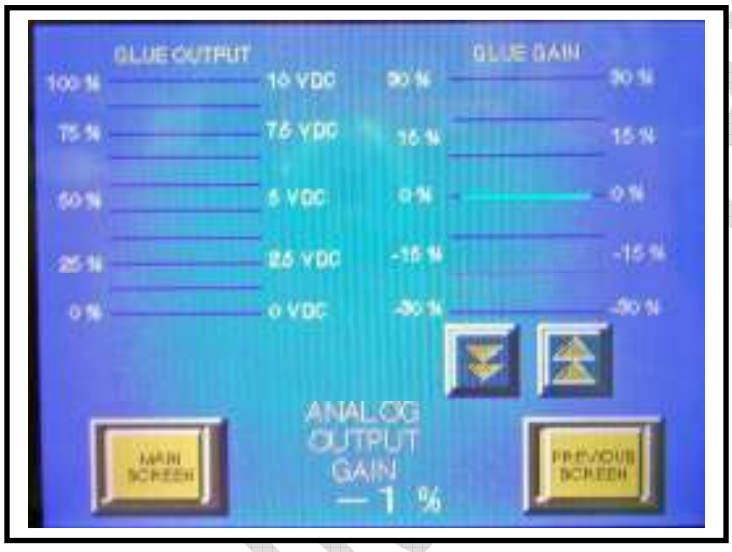
GLUE MENU

Figure III-19

DESCRIPTION	FUNCTION
SELECT # OF GLUE STRIPS	ENABLES FROM ONE TO FOUR GLUE STRIPS TO BE USED
ANALOG OUTPUT SCREEN	SELECTS THE ANALOG OUTPUT MENU
GLUE OFF	TURNS THE GLUE ON OR OFF
PRIME GLUE	PRIMES THE GLUE HEAD (STAYS ON WHILE BUTTON IS PRESSED)
GLUE FROM EDGE (1 THRU 4)	WHEN TO START APPLYING GLUE FROM LEAD EDGE OF PRODUCT
GLUE LENGTH (1 THRU 4)	LENGTH OF GLUE STRIP

PRELIM

4. Analog Output Screen



DESCRIPTION	FUNCTION
MAIN MENU	BRINGS YOU BACK TO THE MAIN SCREEN
ANALOG OUTPUT GAIN	NUMERICAL DISPLAY OF GLUE GAIN
PREVIOUS SCREEN	GOES BACK TO THE PREVIOUS SCREEN
UP/DOWN BUTTONS	INCREASES OR DECREASES THE PRESSURE OF THE GLUE

PRELIMINARY

5. The **MAINTENANCE** SCREEN is now displayed on Human Machine Interface (HMI). See figure III-20.

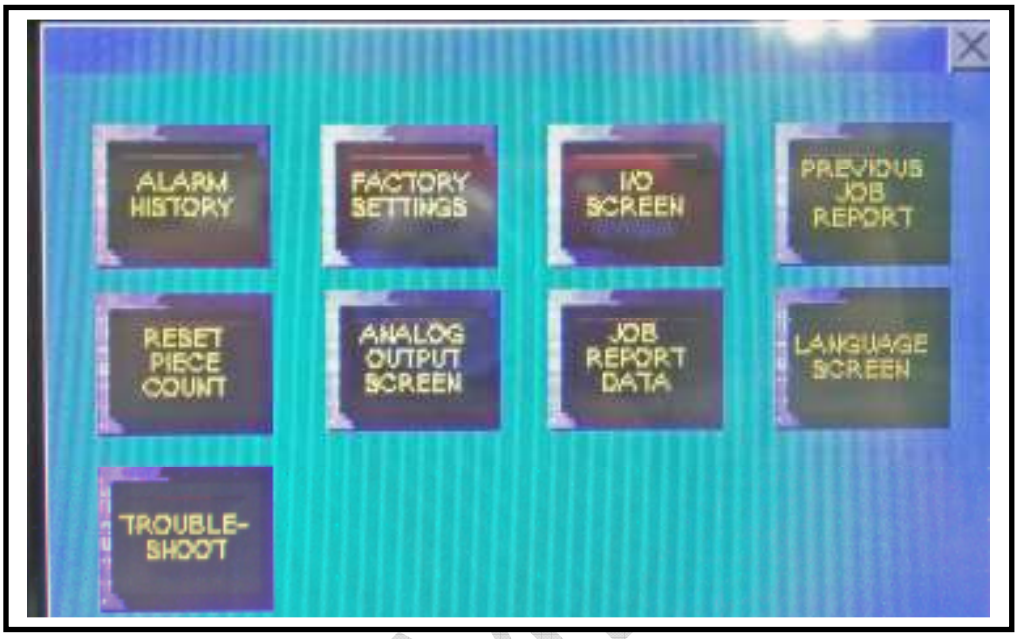
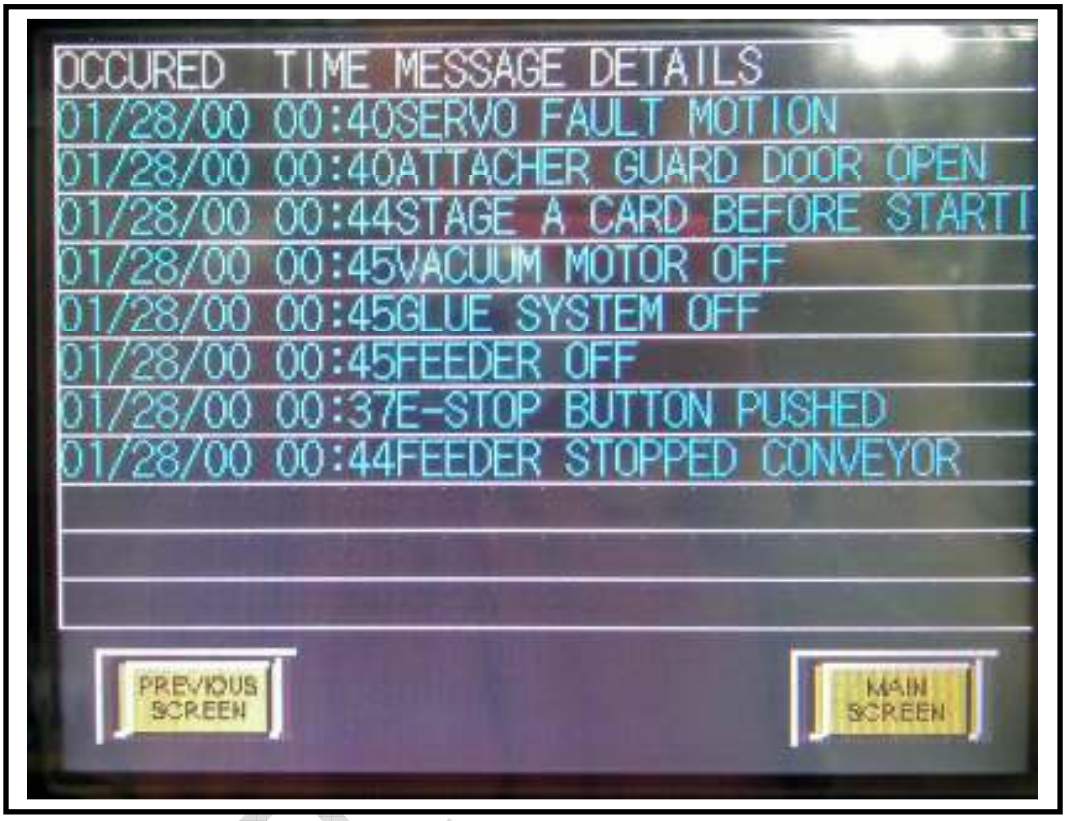


Figure III-20

DESCRIPTION	FUNCTION
ALARM HISTORY	SELECTS THE ALARM HISTORY MENU
FACTORY SETTINGS	SELECTS THE FACTORY SETTINGS MENU
I/O SCREEN	SELECTS THE I/O MENU
PREVIOUS JOB REPORT	SELECTS THE PREVIOUS JOB REPORT MENU
RESET PIECE COUNT	SELECTS THE RESET PIECE COUNT MENU
ANALOG OUTPUT SCREEN	SELECTS THE ANALOG OUTPUT SCREEN MENU
JOB REPORT DATA	SELECTS THE JOB REPORT MENU
LANGUAGE SCREEN	SELECTS THE LANGUAGE SCREEN MENU
TROUBLESHOOT	SELECTS THE TROUBLESHOOT MENU

6. ALARM HISTORY



PRELIMINARY

7. FACTORY SETTINGS

DESCRIPTION	FUNCTION
PLC REV	CURRENT SOFTWARE VERSION
SELECT STANDARD OR METRIC	SELECTS BETWEEN INCHES OR METRIC
GOT REV	TOUCH SCREEN SOFTWARE VERSION
STAND ALONE	
FEEDER FRONT DISTANCE	*NOT USED AT THIS TIME*
VACUUM BELT OFFSET	CALIBRATES DRIFT OF CARD AS MACHINE SPEED INCREASES
REGISTRATION MARK DISTANCE	DISTANCE FROM THE PRODUCT SENSOR TO THE NIP OF THE CARD FEEDER
VACUUM BELT TIMEOUT	TIME THAT THE VACUUM BELTS CONTINUES TO RUN WITHOUT PRODUCT
TOTAL HOURS RUN	HISTORY OF MACHINE ON TIME (LIFE)
GLUE HEAD DISTANCE	DISTANCE FROM PRODUCT SENSOR TO THE GLUE HEAD
TOTAL PIECES RAN	HISTORY OF PIECES RAN (LIFE)
STAGING DISTANCE	POSITION OF CARD IN FEEDER WHEN STAGED

PRELIMINARY

8. I/O SCREEN

THIS SCREEN ENABLES TESTING OF THE INPUTS AND OUTPUTS

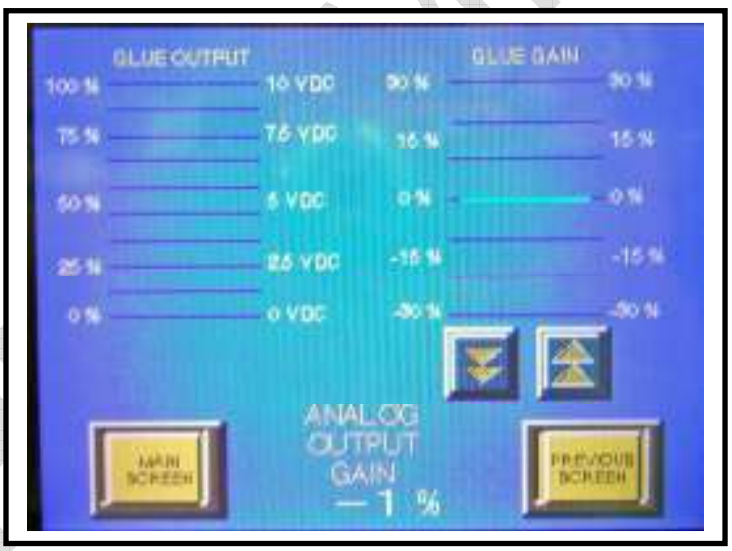
9. PREVIOUS JOB REPORT

RUN DATA FROM THE PREVIOUS JOB

10. RESET PIECE COUNT

Pressing YES will reset the piece count

11. ANALOG OUTPUT SCREEN



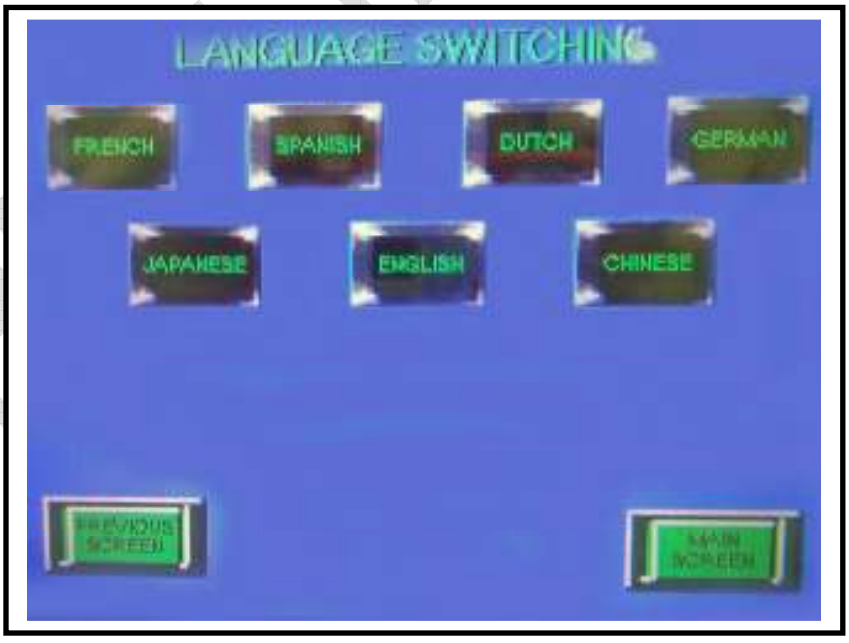
DESCRIPTION	FUNCTION
MAIN SCREEN	BRINGS YOU BACK TO THE MAIN SCREEN
ANALOG OUTPUT GAIN	NUMERICAL DISPLAY OF GLUE GAIN
PREVIOUS SCREEN	GOES BACK TO THE PREVIOUS SCREEN
GLUE GAIN UP/DOWN BUTTONS	INCREASES OR DECREASES THE PRESSURE OF THE GLUE

PRELIMINARY

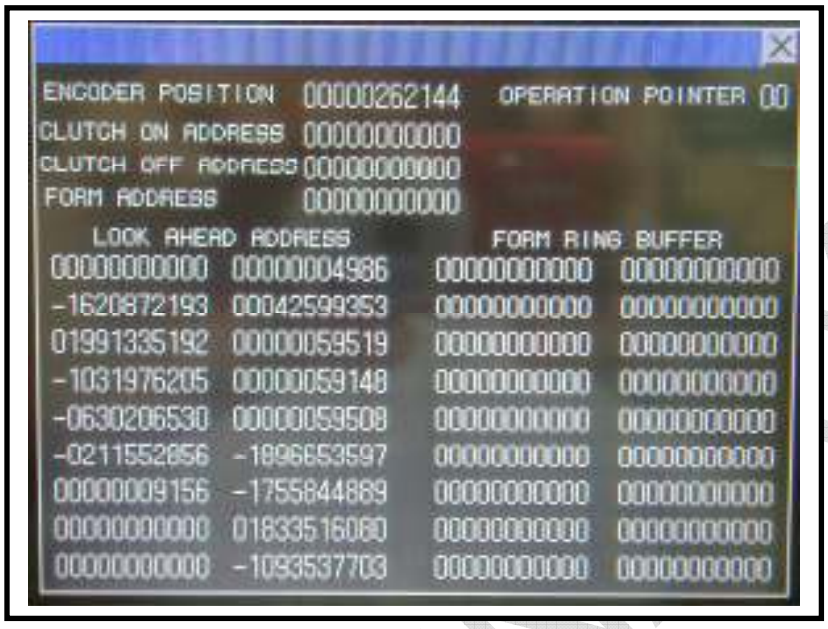
12. JOB REPORT DATA

SHOWS THE DATA FOR THE CURRENT JOB RUN

13. LANGUAGE SCREEN



14. TROUBLESHOOT



USED WITH THE FACTORY FOR TROUBLESHOOTING

15. ERROR DISPLAY

When the APAS goes into a fault the background will turn red.

Operating the APAS

Power:

16. Turn power to the machine on by flipping the white power switch, located on the electrical enclosure on the exit side of the APAS, in an upward direction. See figure III-14.

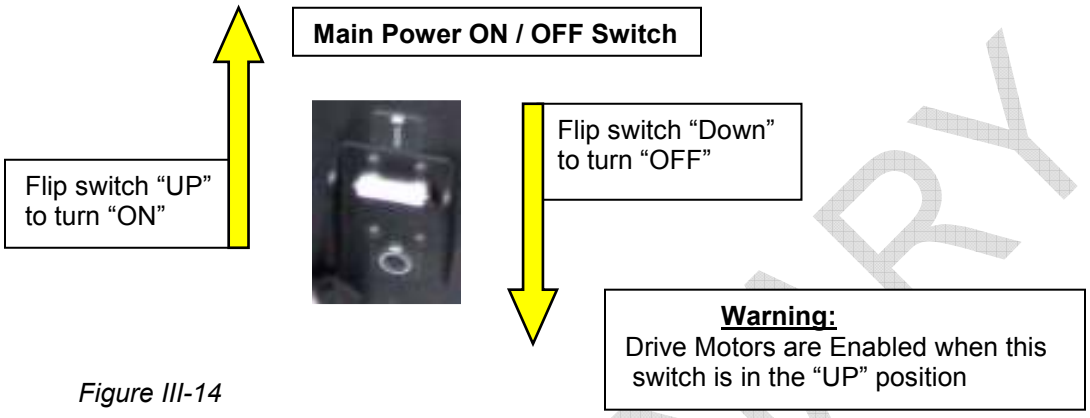

Main Power ON / OFF Switch
Flip switch "UP" to turn "ON"
Flip switch "Down" to turn "OFF"
Warning:
Drive Motors are Enabled when this switch is in the "UP" position

Figure III-14

- INITIAL DISPLAY

The initial display of the APAS will show a red screen. Press the reset button on the APAS base to clear the red screen

- **GLUE SYSTEM POWER UP**

  - **Turn on the power to the glue system**
  - **Allow up to one hour for glue to heat to proper temperature (350 degrees)**

  - **When the glue is at the proper temperature LED (fig G1) will be lit.**
  - **Press (fig G2) to turn on the pump, the LED will illuminate**

NOTE: Refer to the Nordson manual for further operation of this unit

PRELIMINARY

- **FEEDER SETUP**

- **From the main menu press the Feeder Menu button**
  - **Enter the length of the form being fed in FORM LENGTH**
  - **Enter the length of the card being fed from the card feeder in CARD LENGTH**
  - **Enter the distance from the edge of the form to where the card will be placed in 1ST CARD TO EDGE**
  - **If a second card will be applied enter its placement in 2ND CARD TO EDGE**
  - **If Two cards are going to be used select TWO from the # OF CARDS**

Note: Be sure that the FEEDER OFF button is displayed before entering data

Note: To enter data touch the numbers that need to be changed and a keypad will be displayed. Enter the data and press enter to set that value.

PRELIMINARY

- **GLUE SETUP**

- **From the main menu press the GLUE MENU button**
  - **Select the number of glue strips to be placed on the form from the SELECT NUMBER OF GLUE STRIPS button.**
    - **NOTE: There are several different options available but the only two that can be used are FIRST GLUE STRIP SELECTED or 1ST & 2ND GLUE STRIP SELECTED**
  - **Enter the distance where the 1st glue strip will be placed from the lead edge of the form from the 1ST GLUE FROM EDGE**
  - **Enter the length of the 1st glue strip from the 1ST GLUE LENGTH**
  - **If a 2nd glue strip will be placed on the form enter that info from 2ND GLUE FROM EDGE and 2ND GLUE LENGTH**

NOTE: Be sure the GLUE OFF button is being displayed before entering values

NOTE: 3rd and 4th glue setting are only used when a second card feeder is being used

(In the display above only one glue strip is being placed. It is starting ½" from the lead edge of the form and will have a strip that is 1" in length)

Fig G5

Fig G4

- **Once the glue has reached operating temperature and is in the ready mode place a piece of material under the glue head (fig G3)**
- **On the Glue Menu press the GLUE OFF button to turn glue on (fig G4)**
- **On the Glue Menu press the PRIME GLUE (fig G5) button to dispense glue thru the glue head**
- **As long as the PRIME GLUE button is held glue will continue to flow (fig G6)**

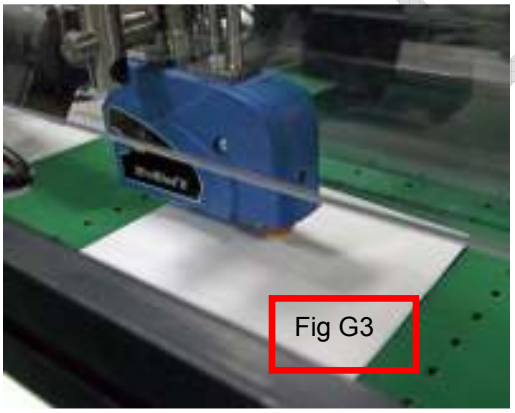


Fig G3

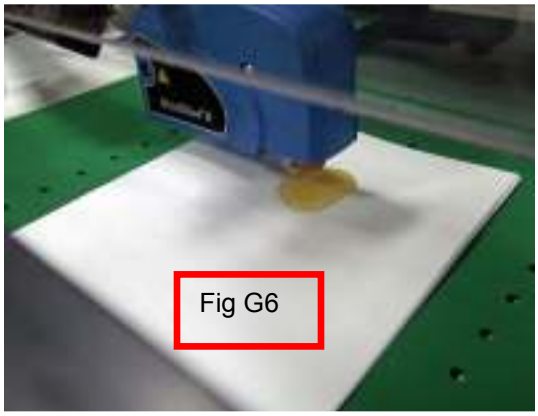


Fig G6

- **Return to the Main Menu**

PRELIMINARY

Fig G7

- **Press the Feeder, Glue, and Vacum buttons to turn the card feeder, glue, and vacuum on (fig G7).**
- **The background will turn red and will stay red until a card is staged**
- **Press the ONE SHOT button to stage a card**
- **The background will turn blue once the card has been staged (fig G8)**

Fig G8

- **On the vacuum base turn on the VACUUM POWER**
- **Set the speed of the base belt by turning the BASE speed pot**
- **Set the gap between pieces by turning the GAP speed pot**
- **Press the green START button to turn on the base**
- **Press the FEEDER button to start feeding forms onto the base from the input feeder**
- **Once the form passes the sensor on the vacuum base glue will be applied to the form and the card will feed onto the form.**

PRELIMINARY

Pitney Bowes
Direct Mail Solutions

Section IV

General Service

APAS - 72

PRELIMINARY

Pitney Bowes
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER

Section - IV

APAS Base Maintenance:

The general maintenance of the APAS base is limited due to the design and materials used in manufacturing. The frequency of general cleaning required for the APAS base is dependent on the amount of running time put on the machine.

General Cleaning:

Removing debris from the machine with compressed air.

1. Acquire and use eye protection, safety goggles or safety glasses with side guards. Also use respiratory protection, a simple disposable cloth or paper style particle mask is sufficient.

2. Alert all other people in the area to stand clear of the work area a minimum of 30 feet, (7.7 meters) where compressed air is being used to blow off machines.

3. Turn off the machine and disconnect the power line.

(**Warning:** To prevent accidental injury, refer to "The Lock Out / Tag Out Procedure" on page 16.)

4. Remove any loose items from the surfaces of the machine, i.e. Ballpoint pens, pencils, tape dispensers, paper clips rubber bands etc.

5. Open all service doors located on the front side of the machine and remove any loose items that might have been left inside, i.e.; spare parts, tools, personal effects such as purses car keys etc. (**Note:** After a complete visual inspection has been completed and loose items removed, leave the service doors open.)

6. Cover the Touch Screen enclosure with plastic to prevent air borne particles from getting into it. (**Note:** if the base cabinet is being used to house a computer, remove the computer from the cabinet.)

7. Hold the air nozzle firmly at arms length and clean off the machine beginning with the top surfaces then work your way down.

(**Warning:** Be sure to keep the direction of compressed air blowing away from you.)

(**Note:** High volume businesses running three (3) shifts five (5) days a week should plan this function once a week. Businesses producing light to moderate volume should plan this function once a month.)

PRELIMINARY

Cleaning Friction Belts, Vacuum Belts and Conveyor Belts:

1. Acquire and use eye protection, safety goggles or safety glasses with side guards.
2. Turn off the machine and disconnect the power lines.
3. Clean the following material belts;
   - ✓ Red Gum Friction Belts of the material Feeder
   - ✓ Vacuum Transport Belts of the APAS Base
   - ✓ Transport Belt of the Discharge Conveyor

Apply a liberal amount of "Simple Green" general-purpose cleaner or ("Isopropyl Alcohol", 70% by volume see warning below) to a soft cloth and wipe down the belt you wish to clean. Advance the belt being cleaned by hand until the entire belt surface has been cleaned.

⚠ (**Warning:** Do not spray or pour Simple Green general-purpose cleaner or Isopropyl Alcohol directly onto the belts, free flowing liquids may seep into some electronic components and cause damage)

(**Note:** "Simple Green" general-purpose cleaner and / or "Isopropyl Alcohol" can be purchased at most local grocery stores and drug stores.)

⚠ **(Warning: Isopropyl Alcohol is FLAMABLE, do not use near an open flame or any other source or device that gives off heat.)**

PRELIMINARY

APAS Vacuum Transport Belt Replacement

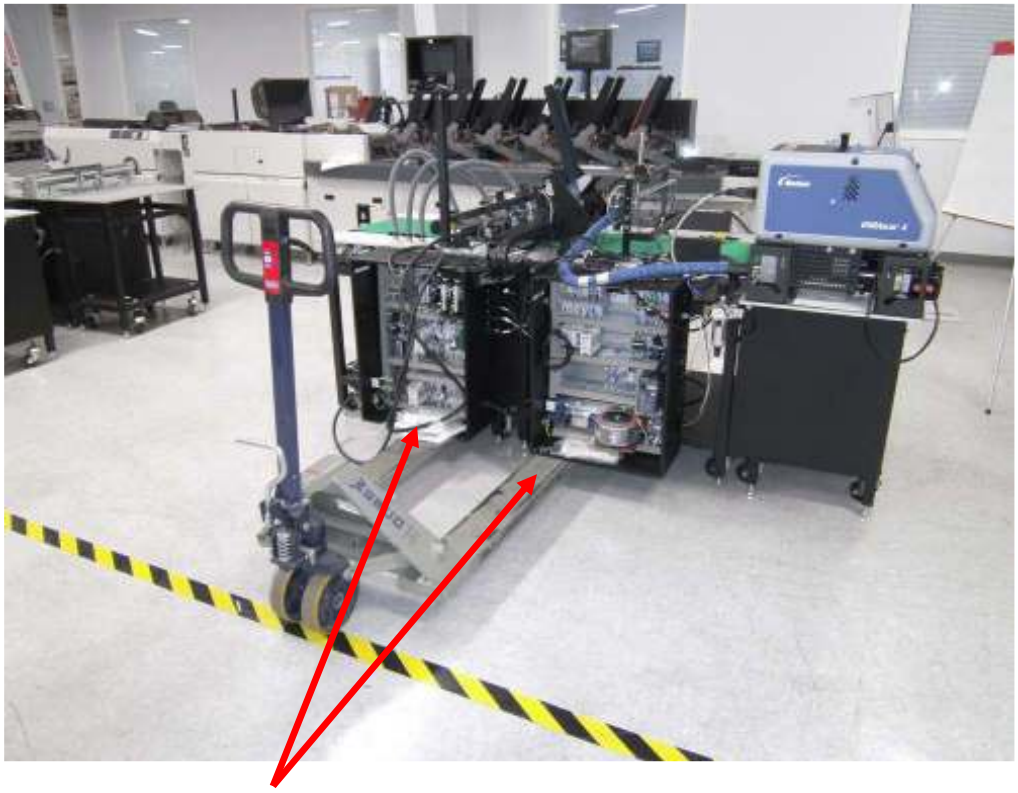
Prepare the work area, clear off the top surface of the APAS base.

1. Turn the main power switch to the off position.

2. Disconnect the power cables.

3. Shut off compressed air supply upstream of APAS system and disconnect air line from main filter-regulator mounted on APAS base.

4. Place support under the electrical cabinets to prevent machine from tipping. See ***(fig S1)***



Support under electrical cabinets

fig S1

Disassembly –

- Remove side covers from APAS ***(fig S2)***

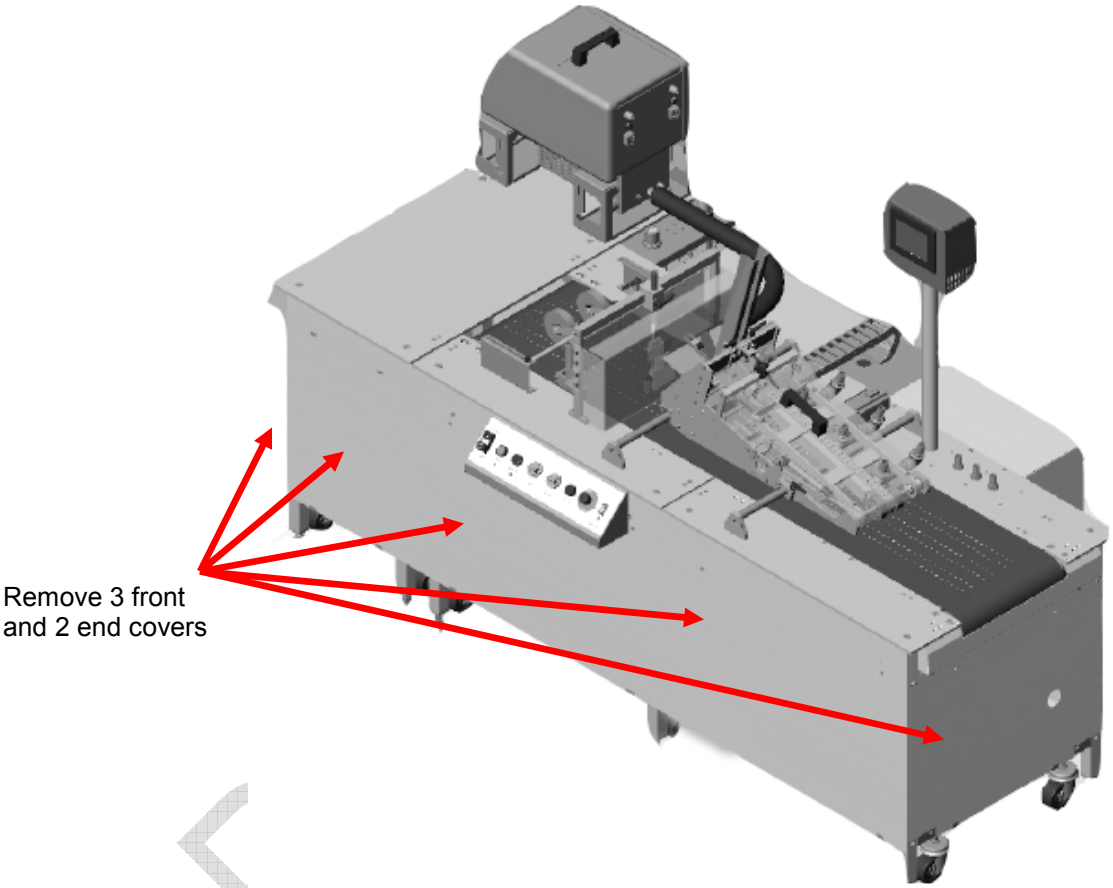


Fig S2

- Remove operator side deck top retaining screws (4x) ***(fig S3)***
  NOTE: Loosen non operator side retaining screws (4x) DO NOT REMOVE

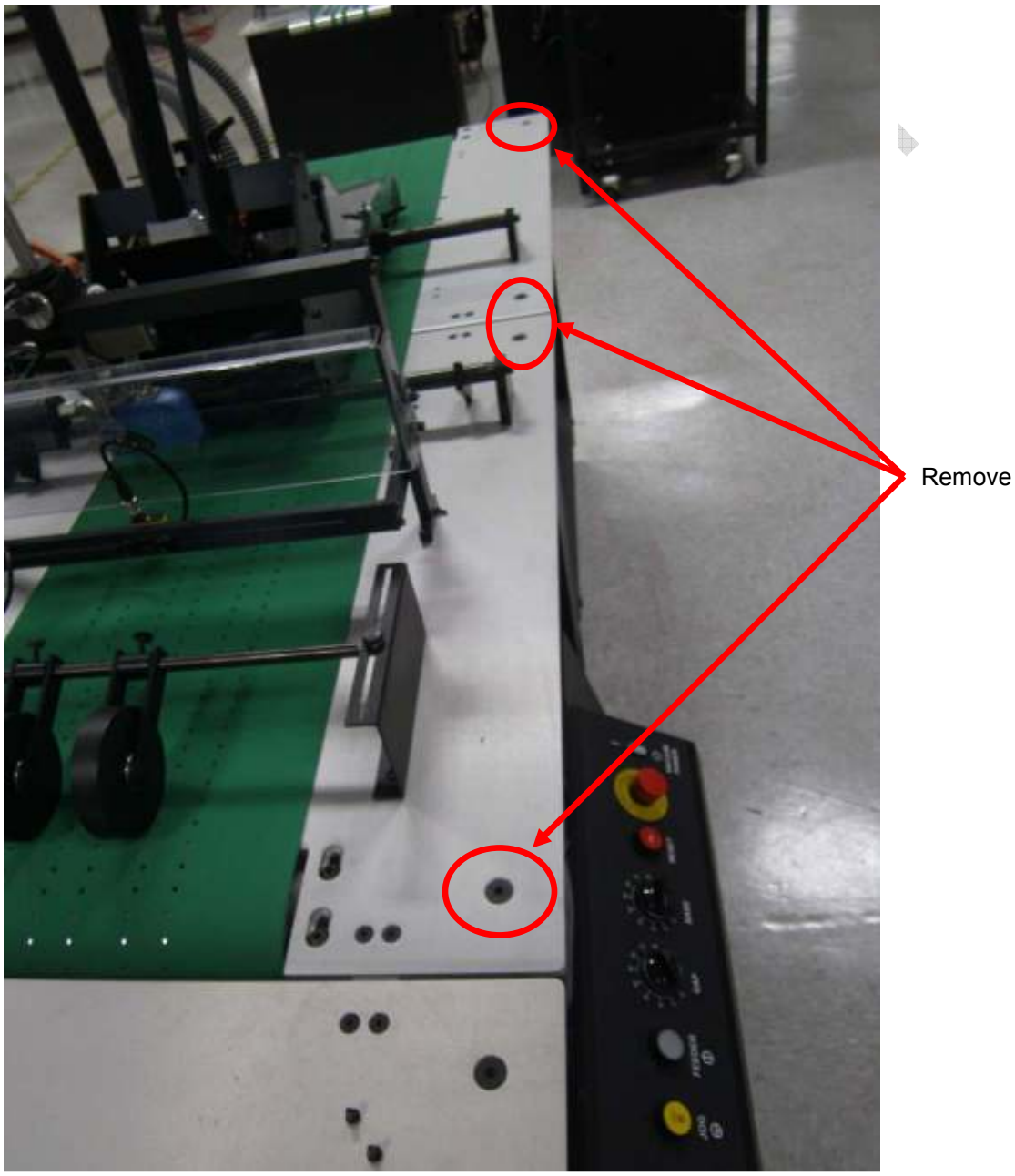


Figure S3

- Remove roller mount, sensor/glue mount, and card feeders mounts on the operator side ***(fig S4)***

Fig S4

PRELIMINARY

- Remove drive motor and motor mount from underside of deck (fig S5)
  - NOTE: Assistance may be needed with motor removal

Fig S5

Motor mount

Motor mounting hardware location
Under vacuum belt

PRELIMINARY

- Remove Idler tensioning rollers (3x) (fig S6, S7& S8)

Fig S6

Fig S7

Fig S8

PRELIMINARY

- With rollers removed belt will have enough slack (fig S9) to allow it to be removed from the drive side (fig S10). Lift the deck to allow the belt to go between the deck and frame.

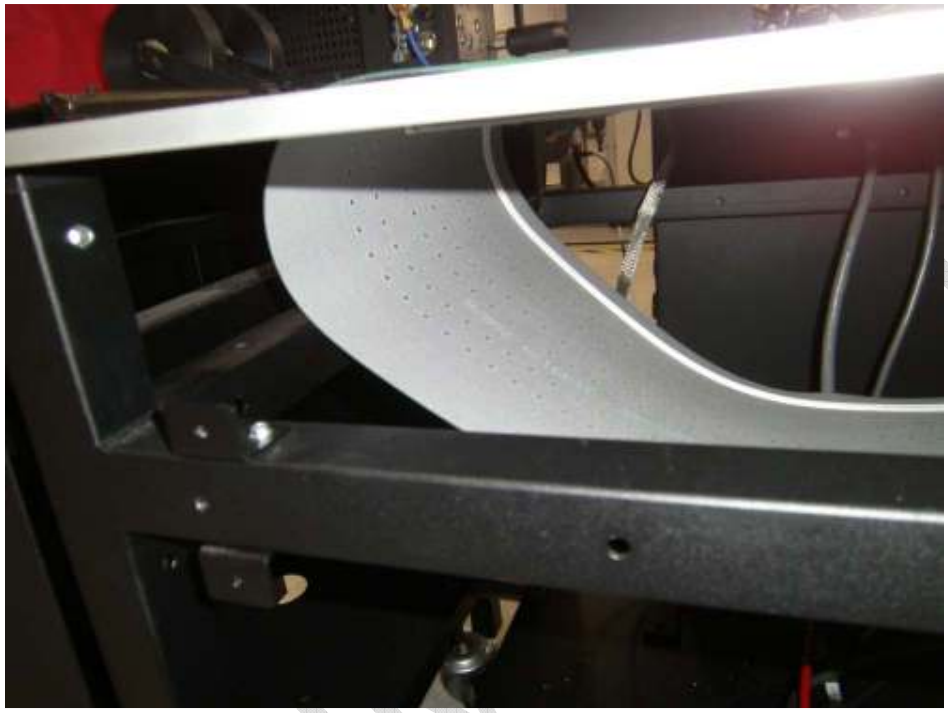


Fig S9

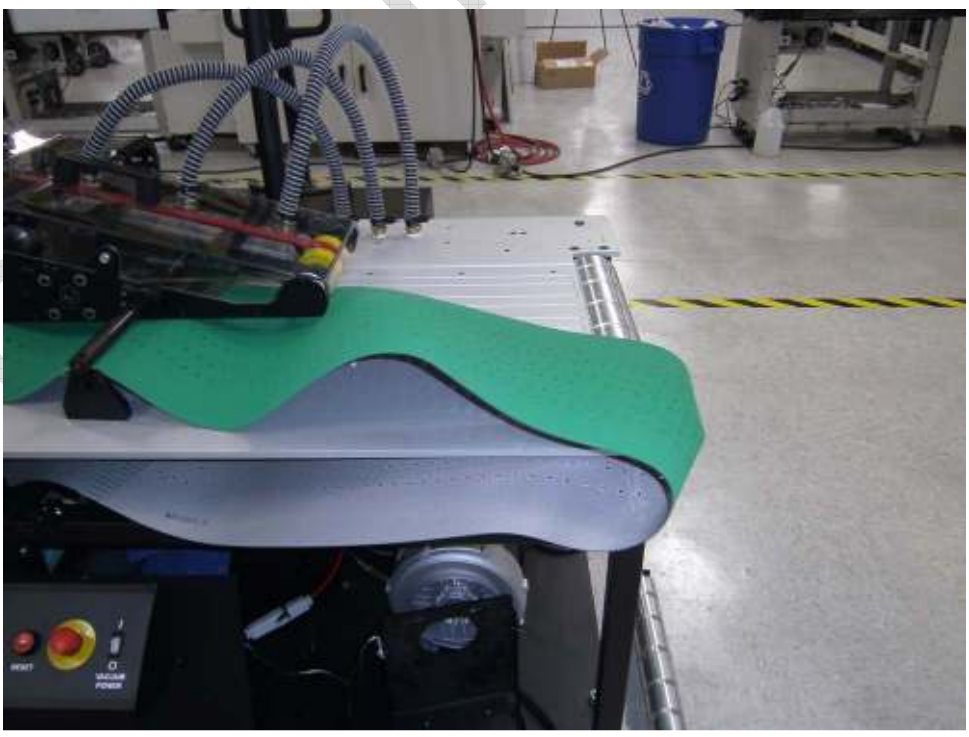


Fig S10

- While lifting feeder mounts work the belt off of the machine (fig 11)

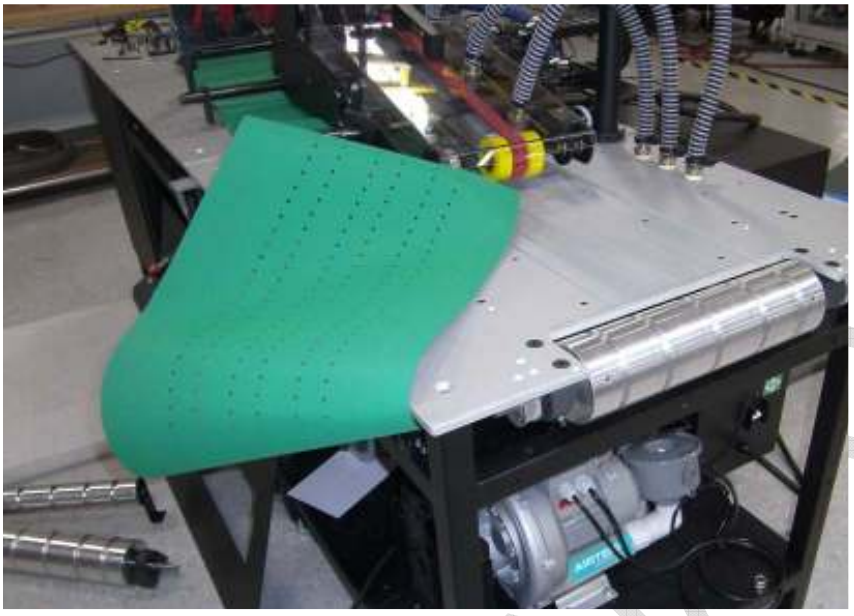
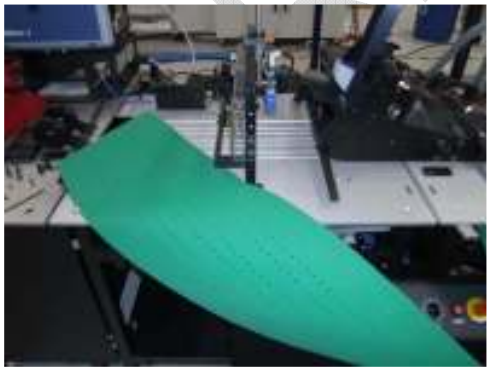


Fig 11



- Follow the previous instructions in reverse order to install the new belt
  - NOTE: Be sure that all rollers are tensioned evenly

PRELIMINARY

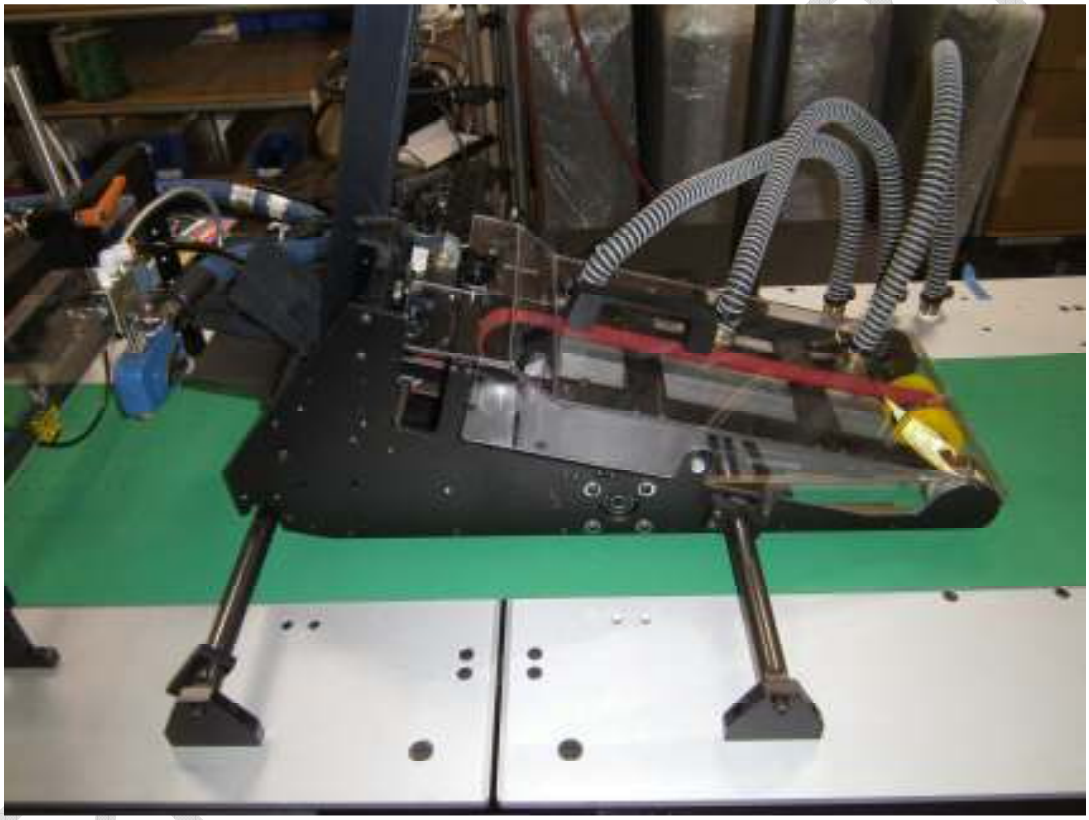
CARD FEEDER BELT REPLACEMENT -

Prepare the work area, clear off the top surface of the APAS base.

1. Turn the main power switch to the off position.

2. Disconnect the power cables.

3. Shut off compressed air supply upstream of APAS system and disconnect air line from main filter-regulator mounted on APAS base.



APAS CARD FEEDER

PROPRIETARY

- Remove vacuum hoses and cover from card feeder (fig CF1 & 2)

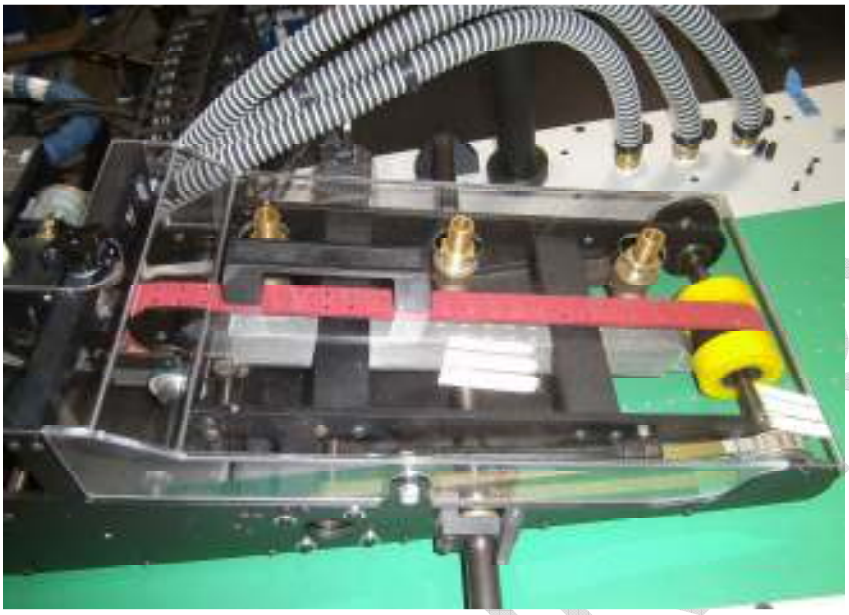


FIG CF 1

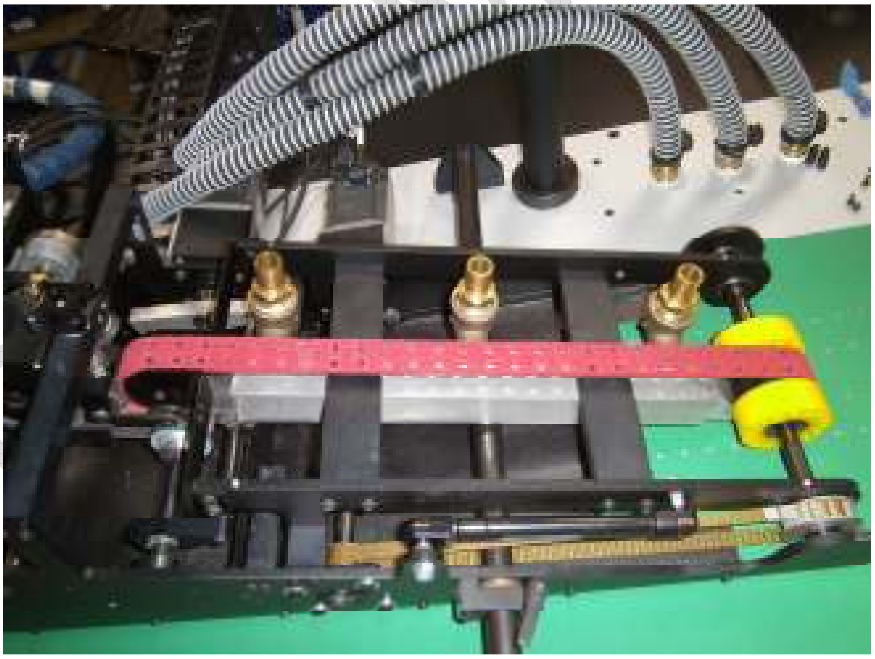


FIG CF 2

- Remove gas strut from side frame and upper vacuum belt drive (fig CF 3)

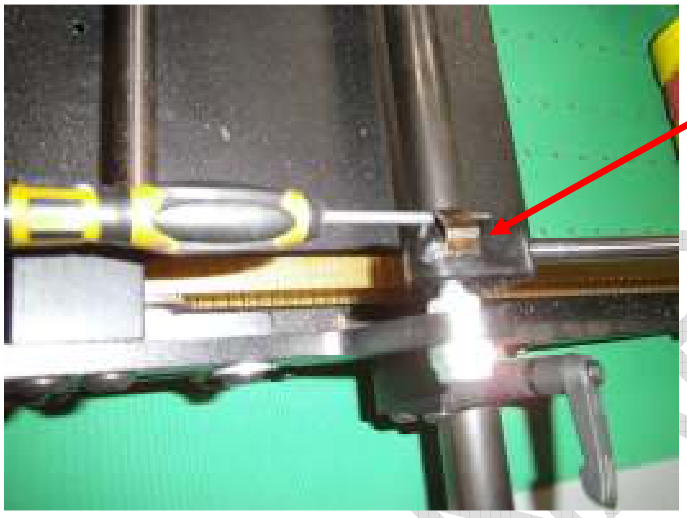
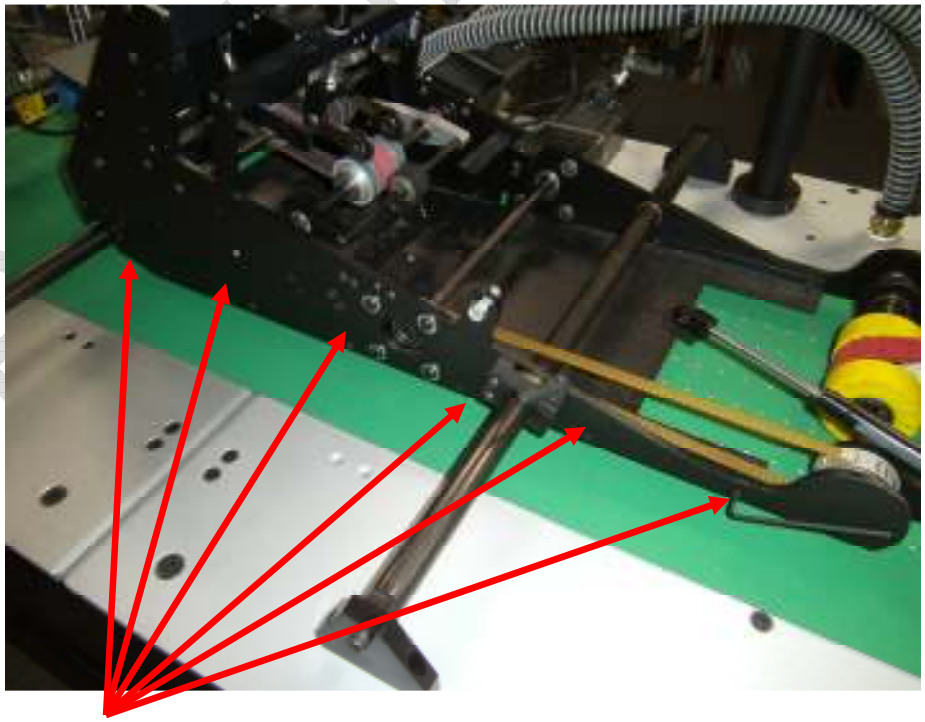


Fig CF 3

- Remove six screw mounting side frame to card feeder (fig CF 4)



Remove

Fig CF 4

PRELIMINARY

- Remove screws attaching side frame to card feeder (fig CF 5)

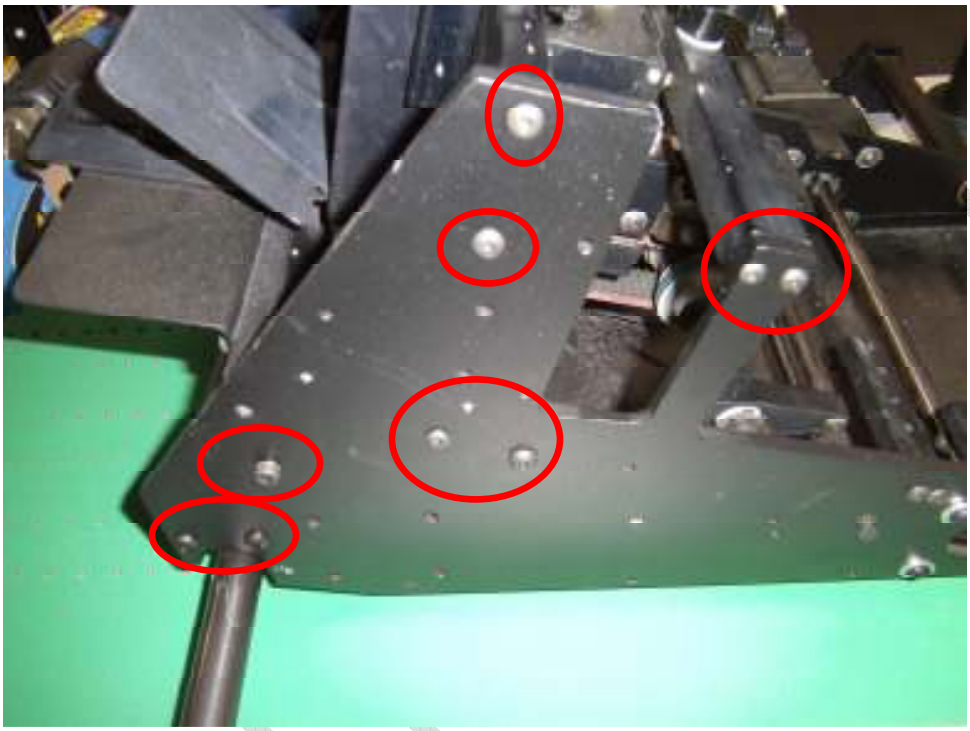


Fig CF 5

Remove 9 screws shown above

PRELI

- Loosen ratchet lock and with the aid of a wooden mallet tap the side frame away from the card feeder (fig CF 6)

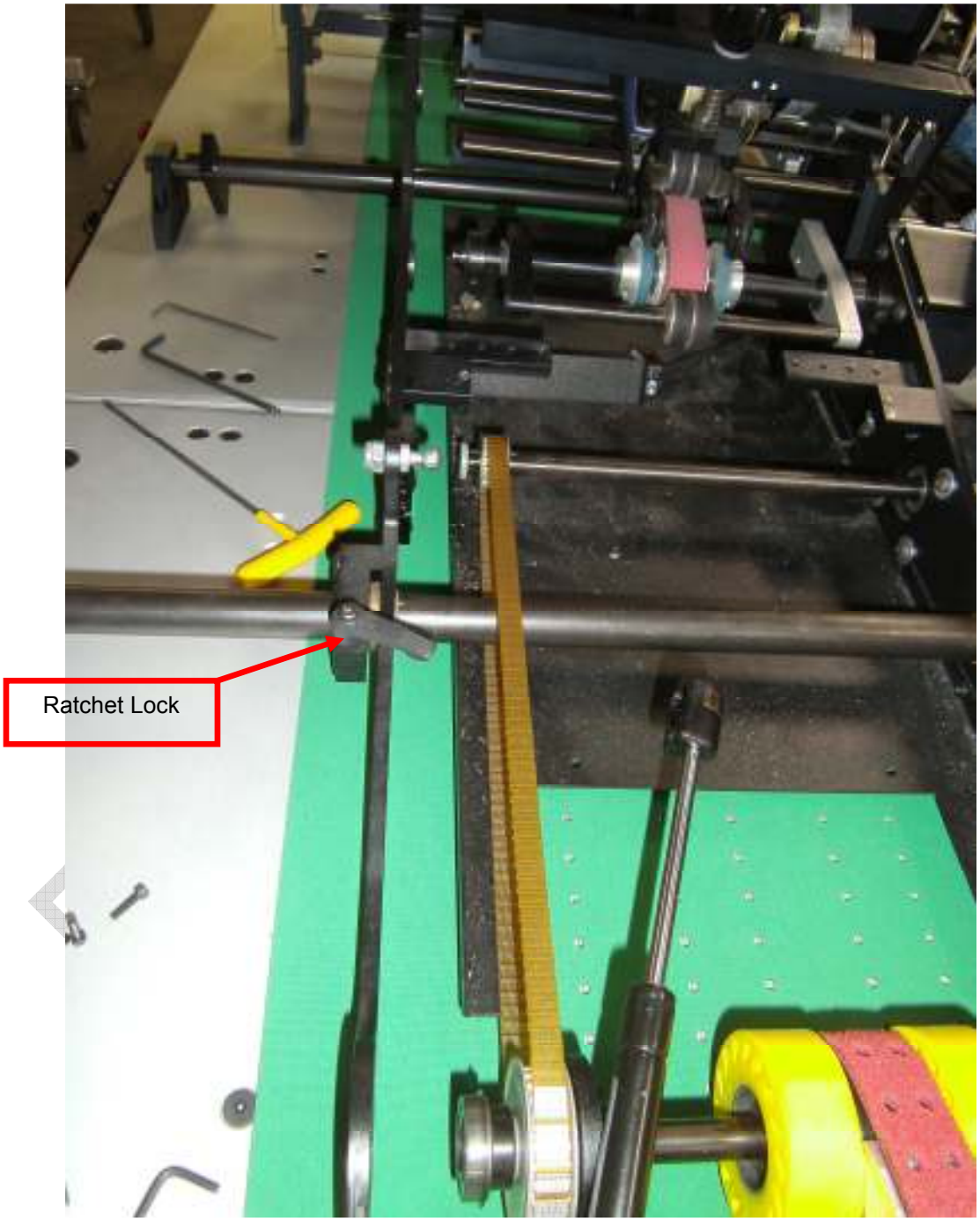


Fig CF 6

- At this point the card feeder vacuum belt and exit rollers can be replaced (fig CF 7)

Fig CF 7

- Remove the locking collar, E clip, washers and NIP block (fig CF 8)
  - NOTE: Be sure to keep all washers in order (fig CF 9)

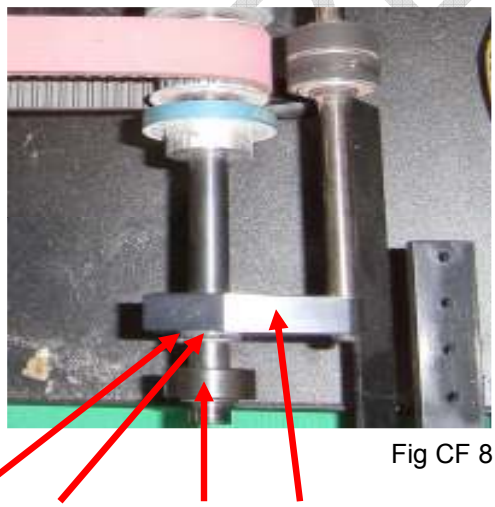


Fig CF 8

E-clips, washers, lock collar, Block

Fig CF 9

- With the block removed the NIP and associated rollers along with the red belt can be replaced (fig CF 10)

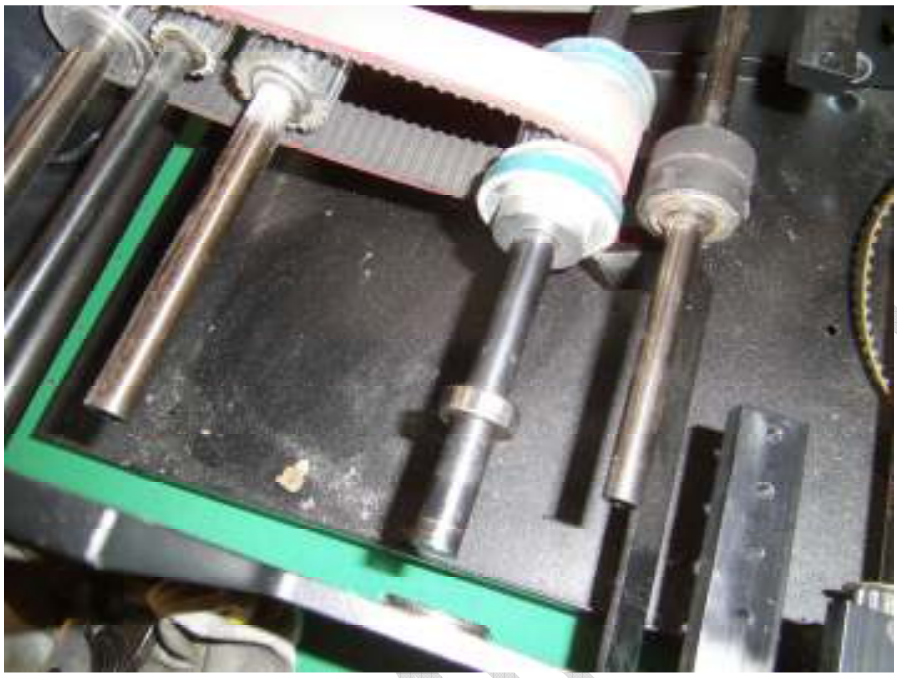


Fig CF 10

PRELIMINARY

- Remove 4 screws from non operator side of tram bar to remove separator assembly for servicing (fig CF11 & 12)

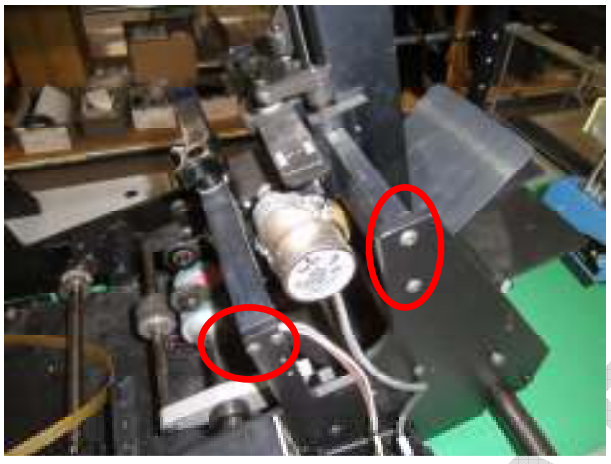


Fig CF 11

Fig CF 12

Replace all components in reverse order

PRELIMINARY

Pitney Bowes
Direct Mail Solutions

Section V

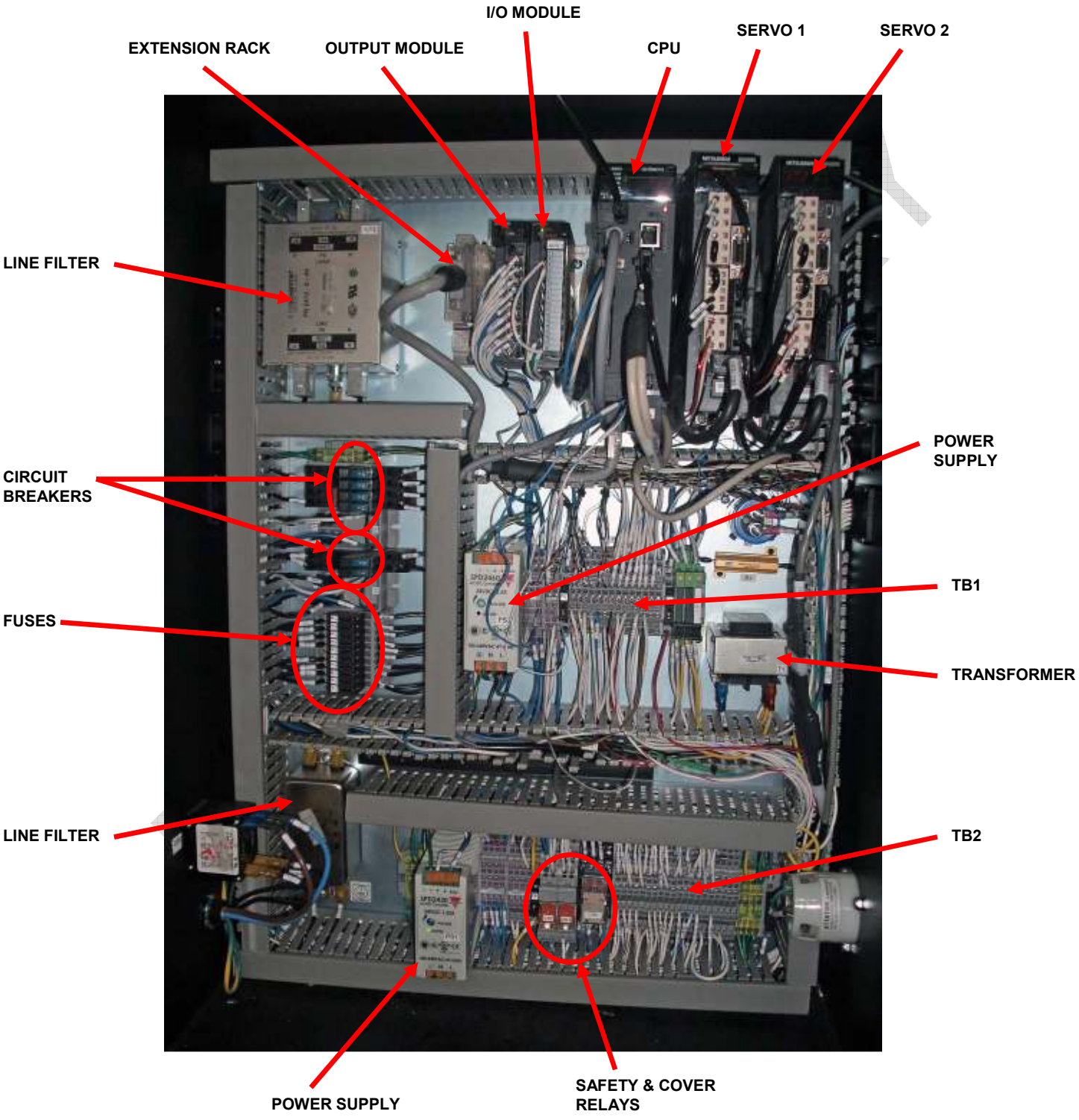
Electrical Components

APAS - 72

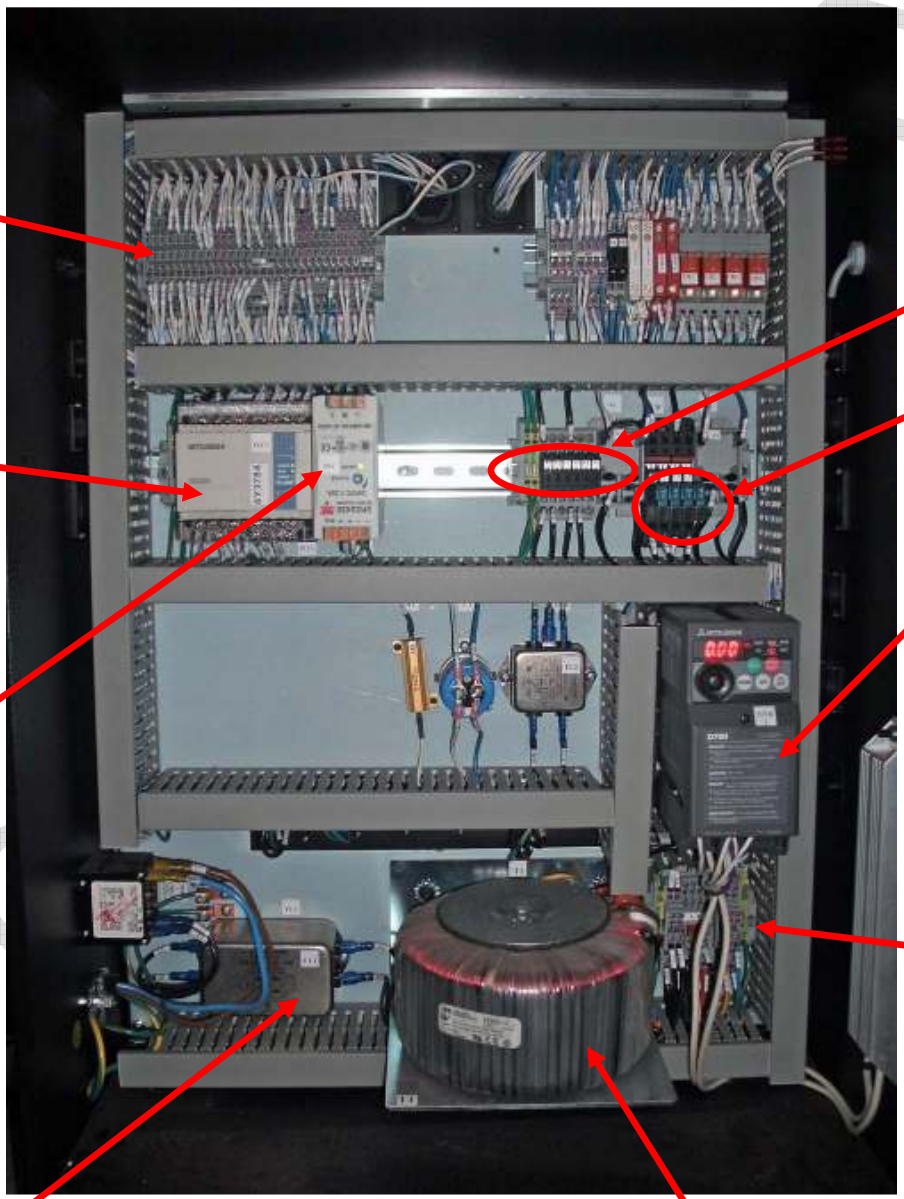
PRELIMINARY

Pitney Bowes
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER

CARD FEEDER ELECTRICAL BOX



VACUUM BASE ELECTRICAL BOX



Pitney Bowes
Direct Mail Solutions

CARD FEEDER & BASE ELECTRICAL BOX
POWER ON STATE

PRELIMINARY

INITIAL POWER UP –

- **CARD FEEDER ELECTRICAL BOX**
  - OUTPUT MODULE 2 & 3 ON
  - I/O MODULE MODE & RUN GRN LEDS ON
    - MODULE DISPLAYS 'RUN'
  - SERVO ONE & TWO DISPLAY E9
  - CR1 & CR2 LED ON
  - POWER SUPPLY 1 & 2 GRN LED ON

- **VACUUM BASE ELECTRICAL BOX**
  - POWER SUPPLY GRN LED ON
  - PLC
    - POWER & RUN GRN LEDS ON
    - INPUT 15 ON
    - OUTPUT 5 FLASHING

POWER UP AND RESET PRESSED –

- **CARD FEEDER ELECTRICAL BOX**
  - OUTPUT MODULE 2 IS ON
  - I/O MODULE GRN LED ON
  - CPU MODE & RUN LED ON
  - SERVO 1 DISPLAYS D01
  - SERVO 2 DISPLAYS D02
  - BOTH POWER SUPPLYS GRN LED ON
  - CR2 IS ON

- **VACUUM BASE ELECTRICAL BOX**
  - CR1 & 3 LEDS ON
  - MOTOR CONTROL DISPLAYS 000
  - POWER SUPPLY GRN LED ON
  - PLC
    - POWER & RUN GRN LEDS ON
    - INPUT 13 ON
    - OUTPUT 0 & 4 ON

Pitney Bowes
Direct Mail Solutions

Section VI

Wiring Diagrams for

APAS – 72

PRELIMINARY

Pitney Bowes
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER

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REVISIONS				
REV	DESCRIPTION	DATE	BY	CHK'D
A	SEE ECN E62.	6/9/10	HM	RK
A1	SEE ECN E74.	08/25/10	HM	RK

ITEM	MANUFACTURER'S PART NUMBER	MANUFACTURER	DMS' PART NUMBER	DESCRIPTION	QTY
1	-	-	14013-062	FIT ATTACHER MAIN CONTROL ENCLOSURE	1
2	-	-	16013-290	FIT MAIN CONTROL ENCLOSURE COVER	1
3	-	-	14013-063	BACK PANEL, FIT ATTACHER CONTROL PANEL ENC.	1
4	FN2412-8/44	SCHAFFNER	98020-111	FILTER - RFI, 250V, 8A, DINrail	1
5	CRS-DY-1025	SPC TECHNOLOGY	98016-070	RING TERMINAL, 1/4" STUD, 12-10 AWG (YEL)	2
6	-	-	98012-008	DUCT, WIREWAY, 1X3 HIGH DENSITY	10 FT
7	0801733	PHOENIX CONTACT	98001-022	DIN RAIL	2.5 FT
8	VPS24-1800	TRIAD	98008-005	TRANSFORMER, 24VAC	1
9	FN2090-20-06	SCHAFFNER	98020-093	LINE FILTER, 20A	1
10	29 66 48 5	PHOENIX CONTACT	98002-041	RELAY, SPDT, 24V AC/DC, W/ DINRAIL BASE	1
11	PYF14AE	OMRON	98002-030	SOCKET, QUAD RELAY	1
12	MY4-DC24S	OMRON	98002-029	RELAY, QUAD, 4PDT	1
13	PYC-A1	OMRON	98002-031	CLIP, QUAD RELAY	2
14	870-501	WAGO	98001-133	TERMINAL, DBL LAYER (4 WAY)	13
15	880-907	WAGO	98001-138	SPRING GROUND TERMINAL	11
16	249-116	WAGO	98001-123	END STOP TERMINAL	6
17	870-518	WAGO	98001-136	END COVER, DBL LAYER SHORTED (4 WAY)	1
18	880-325	WAGO	98001-140	END COVER, GROUND TERMINAL	2
19	CX35-36T-CY	PANDUIT	98019-068	STRAIGHT PRESSURE TONGUE, GROUND LUG	2
20	W92S11D22D-24	MAGNECRAFT	98002-060	RELAY, DPDT, 30A, 24VDC	2
21	3036372	PHOENIX CONTACT	98001-114	TERMINAL BLOCK, CIRCUIT BREAKER	6
22	-	MITSUBISHI	98013-146	MITSUBISHI-FIT ATTACHER KIT	1
23	SPD24601B	CARLO GAVAZZI	98011-019	POWER SUPPLY, 24 V 2.5 A, DC	1
24	SPD24301B	CARLO GAVAZZI	98011-018	POWER SUPPLY, 24 V 1.25 A, DC	1
25	29 67 47 1	PHOENIX CONTACT	98002-049	OPTO, OUTPUT MODULE, 24VDC, W/ DINRAIL BASE	2
26	SYM2 -A	EMEDCO INNOVATIONS SIGNS	99039-069	HIGH VOLTAGE DECALS	1
27	788-312	WAGO	98002-058	RELAY, DPDT, 24VDC, W/ DINRAIL BASE	2
28	870-531	WAGO	98001-139	TERMINAL, DBL LAYER (6 WAY)	24
29	870-538	WAGO	98001-135	TERMINAL, DBL LAYER SHORTED (6 WAY)	12
30	870-573	WAGO	98001-137	END COVER, DBL LAYER (6 WAY)	5
31	870-402	WAGO	98001-130	BRIDGE 2 POS. TERMINAL	2
32	3030190	PHOENIX CONTACT	98001-076	BRIDGE 5 POS, TERMINAL BLOCK	2
33	-	-	98010-022	WIRE, #18AWG, 600V VIO	6 FT
34	-	-	98010-135	WIRE, #12AWG, 600V GRN/YEL	4 FT
35	0712259	PHOENIX CONTACT	98004-089	CIRCUIT BREAKER, 4A	4
36	0712314	PHOENIX CONTACT	98004-092	CIRCUIT BREAKER, 10A	2
37	19002-0024	MOLEX	98016-219	QUICK DISCONNECT, 0.250 FEMALE, 14-16 AWG (BLUE)	16
38	19073-0085	MOLEX	98016-221	TERMINAL RING, #8, 14-16 AWG (BLUE)	2
39	-	-	98010-206	WIRE, #18AWG, 600V VIO	4 FT
40	-	-	98010-197	WIRE, #18AWG, 600V GRN/YEL	7 FT
41	-	-	98010-158	WIRE, #14AWG, 600V BLK	9 FT
42	-	-	98010-121	WIRE, #18AWG, 600V BLUE	7 FT
43	-	-	98010-132	WIRE, #16AWG, 600V BLK	7 FT
44	-	-	98010-208	WIRE, #18AWG, 600V WHT/BLUE	16 FT
45	-	-	98010-104	WIRE, #22AWG, 600V BLUE	20 FT
46	-	-	98010-209	WIRE, #22AWG, 600V WHT/BLUE	20 FT
47	-	-	98010-108	WIRE, #22AWG, 600V WHT/BLK	36 FT
48	-	-	98010-033	WIRE, #14AWG, 600V GRN/YEL	5.5 FT
49	19002-0005	MOLEX	98016-217	QUICK DISCONNECT, 0.187 FEMALE, 18-22 AWG (RED)	5
50	19002-0001	MOLEX	98016-216	QUICK DISCONNECT, 0.250 FEMALE, 18-22 AWG (RED)	4
51	1245860035A	VISHAY SPRAGUE	98020-037	CAP, MOUNTING HARDWARE	1
52	19073-0017	MOLEX	98016-224	TERMINAL RING, #10, 18-22 AWG	3
53	321203	LAPP	98010-186	HAR CABLE, 12G/3 CONDUCTOR	15 FT
54	206306-1	TYCO	98016-103	RECEPTACLE, SQ FL, 37 POS	2
55	206043-1	TYCO	98016-091	RECEPTACLE, SQ FL, 17-14 POS	1
56	206430-1	TYCO	98016-011	RECEPTACLE, SQ FL, 11-4 STD	4
57	-	-	98015-003	METAL LOCKNUT, 1/2"	1
58	BSPD-22	BIMED	98015-001	STRAIN RELIEF, 1/2"	1
59	211769-1	TYCO	98016-093	RECEPTACLE, SQ FLANGED, 17- 9	2
60	BSPD-23	BIMED	98015-002	STRAIN RELIEF, 3/4"	1
61	FIT1005/16 BK002	ALPHA WIRE	98019-067	HEATSHRINK, 5/16", PVC BLK	6 IN
62	E36D101LPN222TA54M	UNITED CHEMI-CON	98020-036	CAPACITOR, 2200uF	1
63	870-404	WAGO	98001-143	BRIDGE 4 POSITION, TERMINAL	2
64	BA2-X0-01-606-111-D	CARLING TECHNOLOGY	98004-044	CIRCUIT BREAKER, 20 AMP, 2 POLE	1
65	HBL2321	HUBBELL	98003-017	PLUG, 20A, 250V, 3 WIRE, HUBBLE TWIST LOCK	1
66	GMC-500MA-R	BUSSMAN	98004-019	FUSE, 500 mA, 250V 5X20MM GMC TIME DELAY	2
67	02181.25HXP	LITTELFUSE	98004-070	FUSE, 5 X 20, TIME DELAY 1.25A	3
68	667408	TYCO	98016-028	CONTACT, SOCKET, 16-12 Awg	3
69	1-66399-0	TYCO	98016-027	CONTACT, SOCKET, 24-20 AWG	95
70	RH05015R00FC02	VISHAY DALE	98020-038	RESISTOR, POWER, 15 OHM, 50W	1
71	222-413	WAGO	98001-119	TERMINAL, LEVERNUT 3 WAY	5
72	2064251	TYCO	98016-002	RECEPTACLE, SQ. FLANGE, SERIES 3, 17-3	1
73	3030161	PHOENIX CONTACT	98001-073	BRIDGE 2 POSITION	2
74	3038367	PHOENIX CONTACT	98001-111	TERMINAL BLOCK, SPRING CAGE DISCONNECT	14
75	3036806	PHOENIX CONTACT	98001-105	FUSE HOLDER, P-FU 5X20	14
76	19073-0087	MOLEX	98016-223	TERMINAL RING, #10, 14-16 AWG (BLUE)	1
77	FIT1001/4 BK001	ALPHA WIRE	98019-045	HEATSHRINK, 1/4", PVC BLK	6 IN
78	1N4002-B	RECTRON	98020-031	DIODE	4
79	770070-1	TYCO	98016-116	CONNECTOR, RECEPTACLE, 3 POS.	1
80	18017-013	FLORIDA GRAPHIC SERVICES	18017-013	LABEL, GROUND SYMBOL (GRN/YEL)	4
81	GMC-1A	BUSSMAN	98004-017	FUSE, 1 AMP, 250V 5X20MM GMC TIME DELAY	4
82	021802.5HXP	LITTELFUSE	98004-073	FUSE, 5 X 20MM, TIME DELAY 2.5A	3
83	GMC-3-R	BUSSMAN	98004-018	FUSE, 3 AMP, 250V 5X20MM GMC TIME DELAY	2
84	C2523A	CAROL	98010-084	CABLE, SHIELDED, 22/4	16 FT
85	PVC10519 CL001	ALPHA WIRE	98019-091	PVC, TUBING .038 I.D.	6 IN
86	770146-1	TYCO	98016-056	CONTACT, SOCKET, 24-18 AWG	3
87	DME2W5P6K-F	CORNELL DUBILIER	98020-029	CAPACITOR, 60Hz	1
88	104257-3	TYCO	98016-086	CONNECTOR, PLUG, 4 POS.	1
89	166722-1	TYCO	98001-035	CONTACT, SOCKET, 26-22AWG	7
90	-	-	18021-165	ASSY, GROUND STRAP, FRONT TABLE	1
91	42164	ICOTEK	98015-067	PLATE, CABLE ENTRY SYS. 16-4	1
92	42168	ICOTEK	98015-062	PLATE, CABLE ENTRY SYS. 16-8	1
93	41251	ICOTEK	98015-066	GLAND, CABLE ENTRY SYS. BLANK	2
94	41207	ICOTEK	98015-064	GLAND, CABLE ENTRY SYS. 7-8MM	10
95	AW18029	FLORICA GRAPHIC SERVICES	AW18029	ROHS LABEL, 2.0" X 1.5"	1
96	104257-2	TYCO	98016-264	RECEPTACLE HOUSING, 3 POS, .001	1
97	-	-	16021-142	ASSY, GROUND STRAP, 40"	2
98	16015-024	IDENTIFICATION PRODUCTS CORP.	16015-024	LABEL "OFF"	1
99	16015-025	IDENTIFICATION PRODUCTS CORP.	16015-025	LABEL "ON"	1
100	1-206062-6	TYCO	98016-015	BACKSHELL, PLASTIC , SIZE 11	2
101	206429-1	TYCO	98016-029	PLUG, SERIES 1, 11-4 REV.	2
102	1-66400-0	TYCO	98016-025	CONTACT, PIN, 24-20 AWG	6
103	8770	BELDEN	98010-074	CABLE, SHIELDED, 18/3	10 FT
104	B8771-100	BELDEN	98010-075	CABLE, SHIELDED, 22/3	5 FT
105	-	DMS	16009-071	BRACKET, 2 POLE BREAKER	1
106	-	DMS	16008-214	BAR, ENCLOSURE MTG.	1
107	-	DMS	18021-269	ASSY, GROUND STRAP, 34 IN LONG	1
108	-	-	98019-001	1X1 TIE MOUNTS	2
109	-	-	98019-027	CABLE TIE	2
110	DME2W8P2K-F	CORNELL DUBILIER	98020-033	CAPACITOR, 50Hz	1
111	-	-	98015-004	METAL LOCKNUT, 3/4"	1
112	-	-	18017-006	CAUTION LABEL	1

NOTES

1. UNLESS OTHERWISE SPECIFIED, TOLERANCE ON CUT WIRE LENGTHS SHALL BE AS FOLLOWS:
   DIMENSION RANGE(IN.) TOLERANCE(IN.)
   1 TO 36 +/-0.25
   ABOVE 36 TO 196 +1.0/-0.5
2. IDENTIFICATION: WHERE DESIGNATED ALL CONNECTORS/COMPONENTS SHALL BE INDELIBLY MARKED APPROXIMATELY. COMPONENTS SHALL BE MARKED ON COMPONENT AND ON BACK PLATE. WHERE DESIGNATED ALL WIRES SHALL BE INDELIBLY MARKED PER CONNECTOR PIN LOCATION. CABLES LEAVING ENCLOSURE THROUGH A STRAIN RELIEF SHALL BE MARKED ACCORDING TO ITS CONNECTOR DESIGNATION.
3. ASSEMBLY SHALL BE MARKED TO INCLUDE THE FOLLOWING INFORMATION: DMS PART NUMBER, REVISION LEVEL, AND VENDOR NAME AND/OR LOGO.
4. COMPLETED ASSEMBLY SHALL BE 100% TESTED FOR OPEN, SHORTS, MISWIRES, AND FOR PIN TO PIN CONTINUITY AFTER ASSEMBLY.
5. CRIMPS ON COMPLETED ASSY TO PASS A PULL TEST PER MANUFACTURER'S SPECS. CRIMP HEIGHT OF TERMINALS TO BE PER MANUFACTURER'S SPECS.
6. THERE SHALL BE NO PROCESS MATERIAL OR GEOMETRIC CHANGES IN THE FABRICATION OF THIS PART AS HEREIN SPECIFIED WITHOUT THE WRITTEN CONSENT OF PITNEY BOWES.
7. IN THE EVENT OF A CONFLICT BETWEEN THIS SPECIFICATION AND THE VENDOR'S DOCUMENTATION. THIS SPECIFICATION SHALL TAKE PRECEDENCE.
8. NO SUBSTITUTIONS OF MATERIALS OR ASSEMBLY VENDORS ARE ACCEPTABLE. MATERIAL VENDORS ARE REFERENCED IN PB STANDARD SHEETS. ASSEMBLY VENDOR IS REFERENCED IN THE PB PIMS DATABASE ASSEMBLY REQUIREMENTS ARE DOCUMENTED IN PB STANDARDS ES1052. CONTACT PB PROCUREMENT FOR DETAIL.
9. WORKMANSHIP SHALL BE TO THE MANUFACTURER'S PROCESS STANDARDS, NFPA 70, NFPA 79, AND TO ANSI/IPC-A-610A, CLASS2, WHEN APPLICABLE.
10. THIS ASSEMBLY AND IT'S COMPONENTS MUST COMPLY WITH PITNEY BOWES STD2006. THIS ASSEMBLY SHALL ALSO BE MARKED "<ROHS>" USE ADDITIONAL LABEL IF NECESSARY.
11. ASSEMBLY TO INCLUDE TAMPER PROOF SEAL. TAMPER PROOF SEAL SHALL BE HALF ON COVER AND HALF ON ENCLOSURE.
12. FOR WIRING OF RESISTOR BRAKE, SEE FIT ENCLOSURE DRAWING (16021-105).
13. DEPENDING ON FINAL DESTINATION, P0 AND C2 CAPACITOR SHALL BE CHANGED TO THE FOLLOWING FOR EUROPE, USE PLUG 98003-102 AND 50Hz CAPACITOR 98020-033.
14. VENDOR TO INCLUDE THE FOLLOWING ITEMS IN A BAG INSIDE THE ENCLOSURE, ITEMS 71, 107, 108, AND 109.
15. ELECTRICAL HARDWARE TO BE MOUNTED USING MACHINED SCREWS DRILLED AND TAPPED INTO PANEL (DO NOT USE NUTS IN BACK OF PANEL). SELF TAPPING SCREWS CAN BE USED FOR DIN RAIL AND WIRE WAY.
16. WRAP TAPE AROUND CONNECTOR TO HOLD HARDWARE IN PLACE.

PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
PARTS LIST

	DATE	NAME
DRAWN	07/24/09	GS
APPR.	3/19/10	RK
RLS.	03/19/10	HM

DRAWING-NUMBER 14021-084 | REV A1
SIZE C | SCALE DO NOT SCALE DRAWING | SHEET 1 OF 13
071409REVE1

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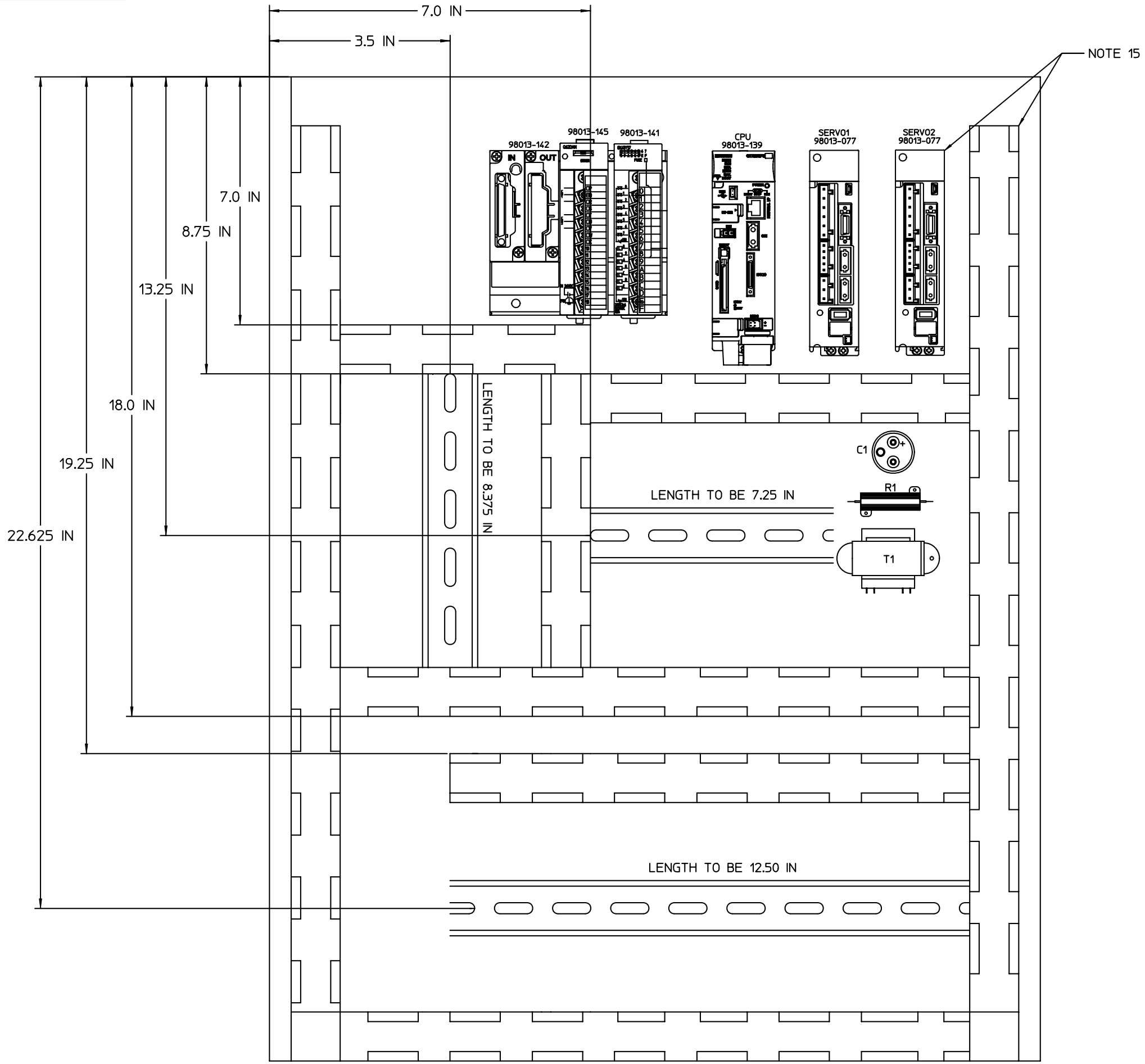

PITNEY BOWES	
TITLE	APAS - ADVANCE PRODUCT ATTACHING SYSTEM CARD FEEDER ENCLOSURE PANEL DIMENSIONS
DRAWING-NUMBER	14021-084
REV	A1
SIZE C	SCALE DO NOT SCALE DRAWING
SHEET	2 OF 13

071409REVE1

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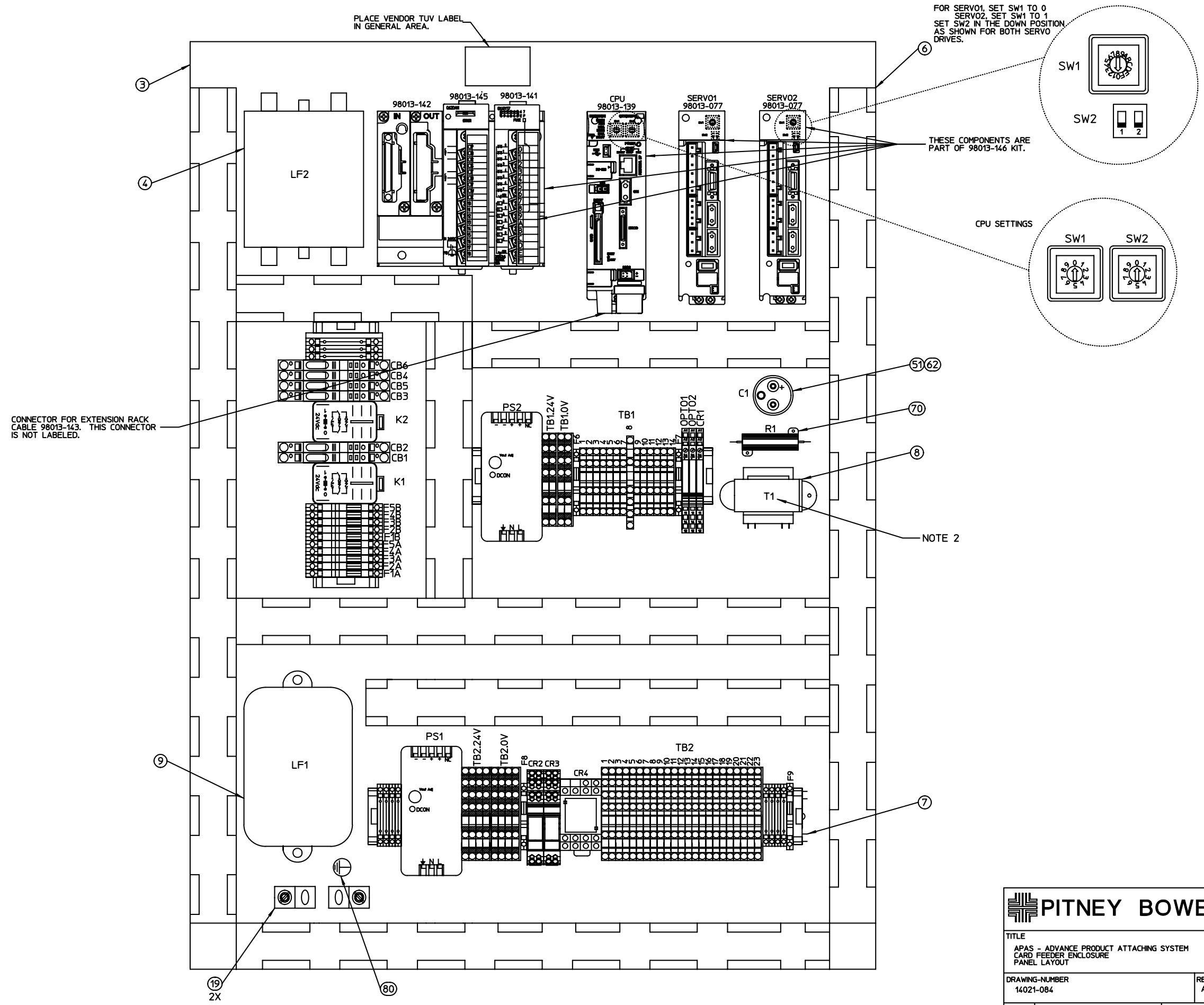

1	2	FOLD 3	4	5

PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
PANEL LAYOUT

DRAWING-NUMBER	REV
14021-084	A1

SIZE C	SCALE DO NOT SCALE DRAWING	SHEET 3 OF 13

071409REVE1

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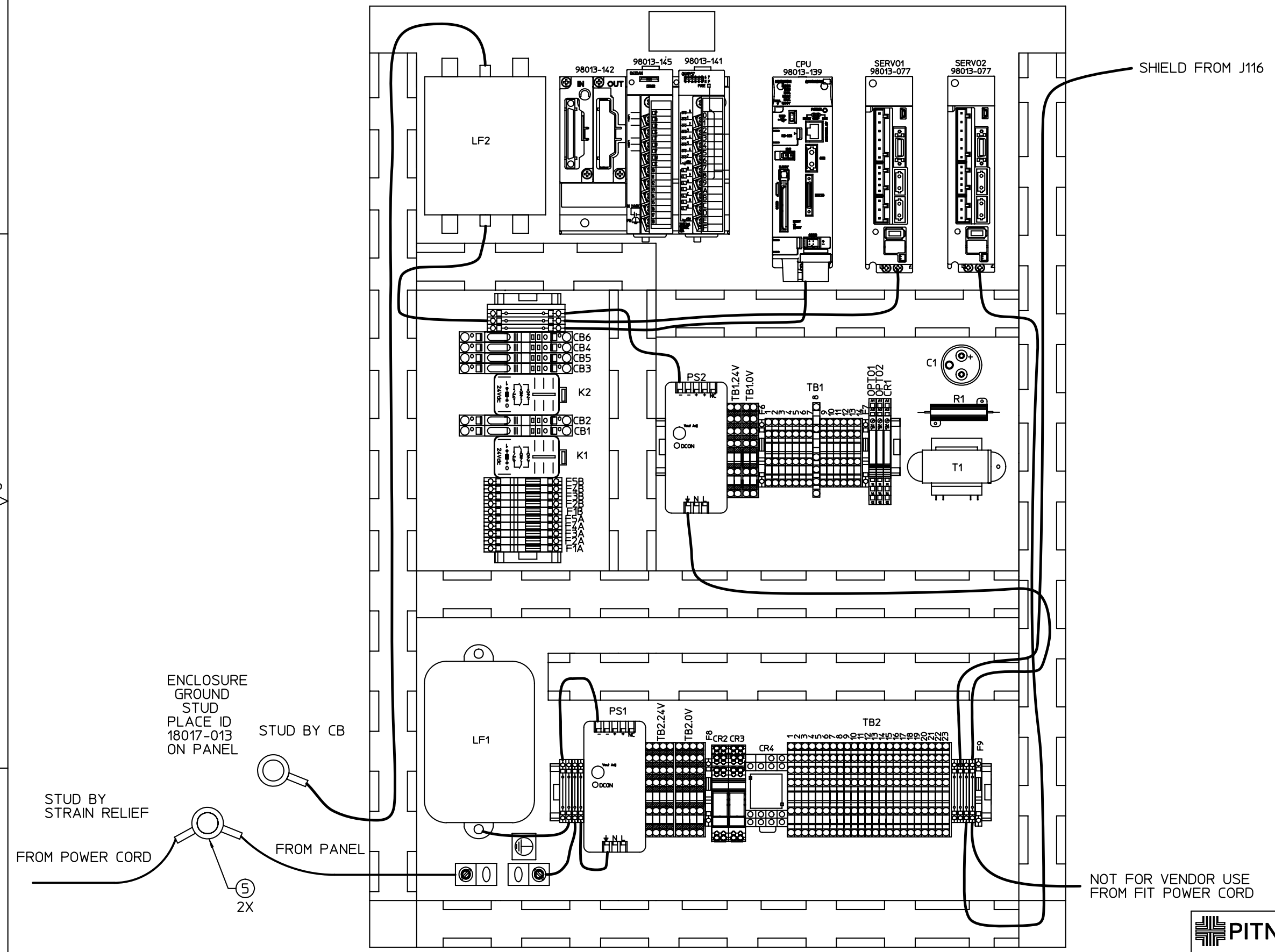

PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
GROUNDING

DRAWING-NUMBER	REV
14021-084	A1

SIZE C | SCALE DO NOT SCALE DRAWING | SHEET 4 OF 13

071409REVE1

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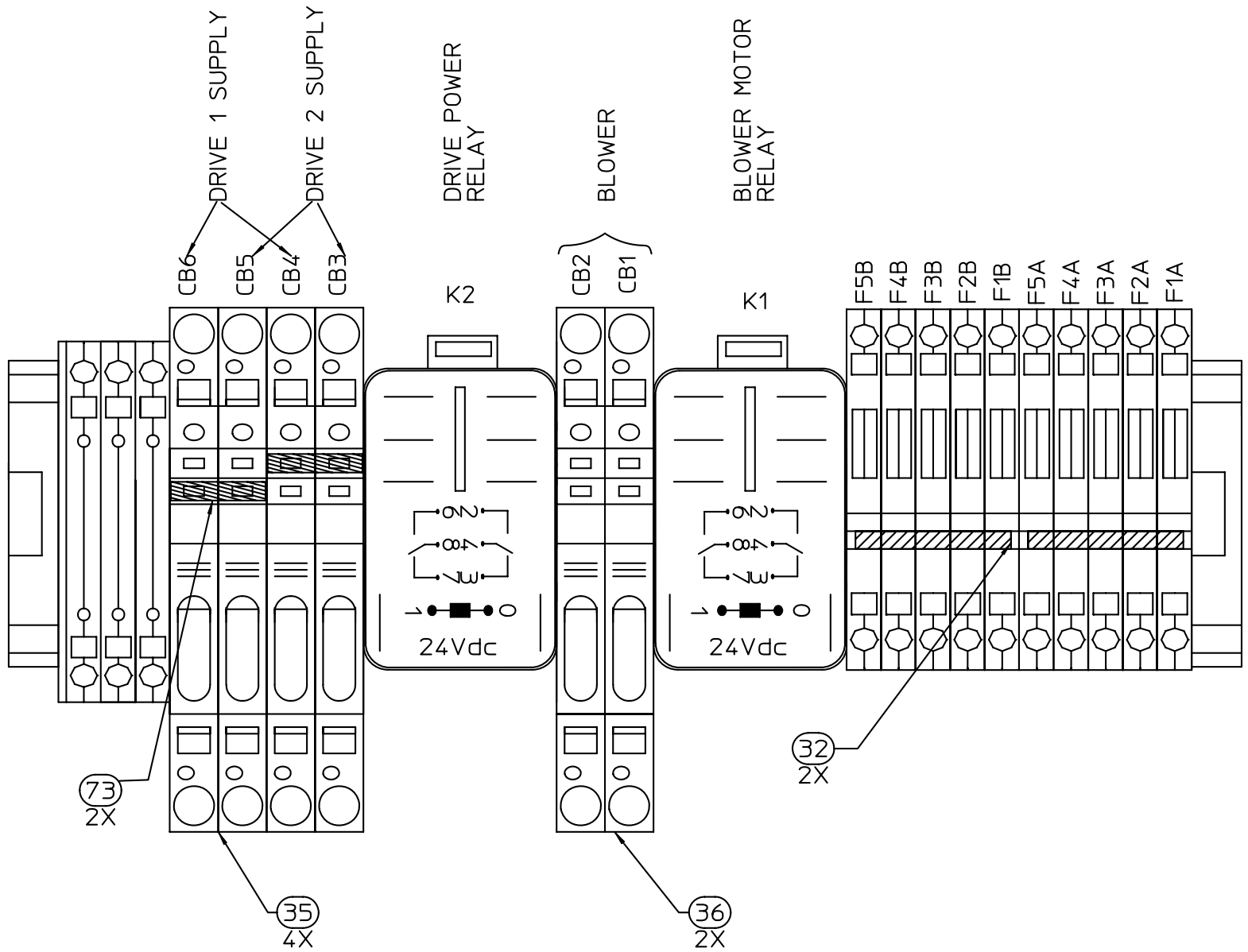

ITEM NO.	QTY	DESCRIPTION
16	1	END STOP TERMINAL
74	10	SPRING-CAGE DISCONNECT TERMINAL BLOCK SINGLE
20	1	RELAY, DPDT, 30A, 24DC, W/ DINRAIL BASE
21	2	SPRING CAGE, TERMINAL BLOCK
20	1	RELAY, DPDT, 30A, 24DC, W/ DINRAIL BASE
21	4	TERMINAL BLOCK, CIRCUIT BREAKER
15	3	SPRING GROUND TERMINAL
18	1	TERMINAL COVER, GROUND SPRING
16	1	END STOP TERMINAL

TERMINAL BLOCK 2 LAYOUT (LEFT TO RIGHT)

PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
HIGH VOLTAGE TB LAYOUT

DRAWING-NUMBER 14021-084 | REV A1

SIZE C | SCALE DO NOT SCALE DRAWING | SHEET 5 OF 13

071409REVE1

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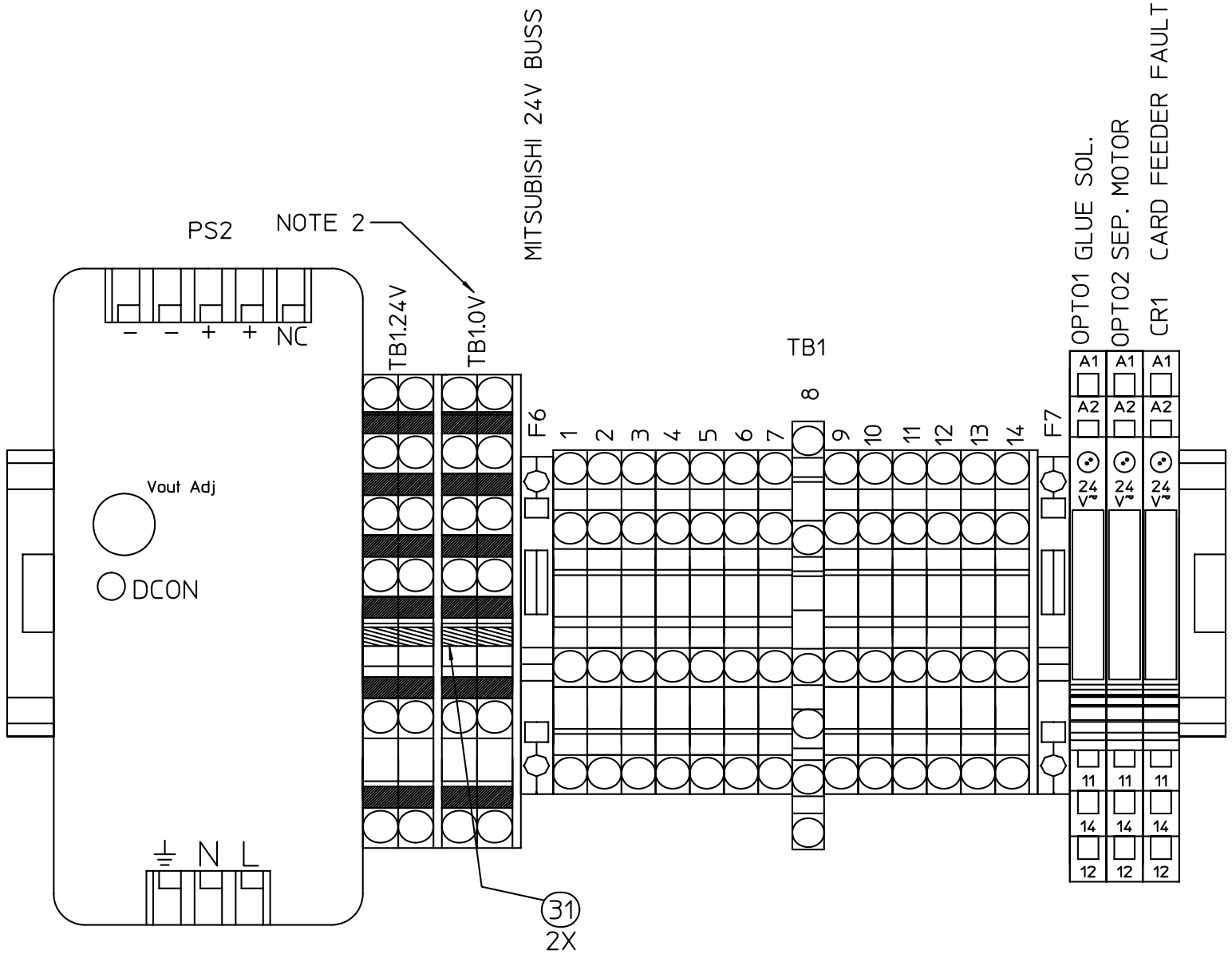
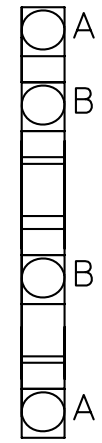


ITEM NO.	QTY	DESCRIPTION
TERMINAL BLOCK LAYOUT (Left to Right)		
16	1	END STOP TERMINAL
10	1	RELAY, SPDT, 24V AC/DC, W/ DINRAIL BASE
25	2	OPTO, OUTPUT MODULE, 24VDC, W/ DINRAIL BASE
74	1	SPRING-CAGE DISCONNECT TERMINAL BLOCK SINGLE
17	1	END COVER, DBL LAYER SHORTED (4 WAY)
14	6	TERMINAL, DBL LAYER (4 WAY)
28	1	TERMINAL, DBL LAYER (6 WAY)
14	7	TERMINAL, DBL LAYER (4 WAY)
74	1	SPRING-CAGE DISCONNECT TERMINAL BLOCK SINGLE
30	1	END COVER, DBL LAYER (6 WAY)
29	2	TERMINAL, DBL LAYER SHORTED (6 WAY)
30	1	END COVER, DBL LAYER (6 WAY)
29	2	TERMINAL, DBL LAYER SHORTED (6 WAY)
23	1	POWER SUPPLY, 24 Volt 2.5A, DC
16	1	END STOP TERMINAL



PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
TB1 LAYOUT

DRAWING-NUMBER	REV
14021-084	A1

SIZE C	SCALE DO NOT SCALE DRAWING	SHEET 6 OF 13

071409REVE1

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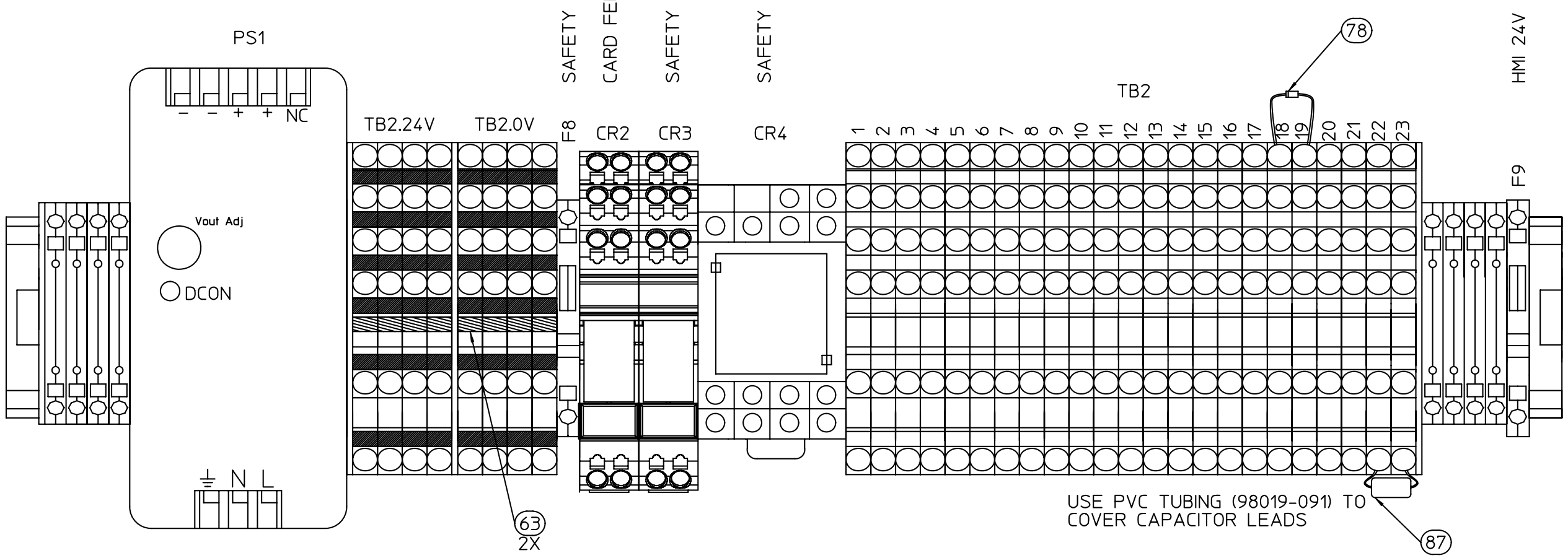

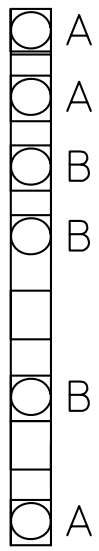

ITEM NO.	QTY	DESCRIPTION
16	1	END STOP TERMINAL
74	1	SPRING-CAGE DISCONNECT TERMINAL BLOCK
15	4	SPRING GROUND TERMINAL
30	1	END COVER, DBL LAYER (6 WAY)
28	23	TERMINAL, DBL LAYER (6 WAY)
13	2	CLIP, QUAD RELAY
11	1	SOCKET, QUAD RELAY
12	1	RELAY, QUAD, 4PDT
27	2	RELAY, DPDT, 24V AC/DC, DINRAIL BASE
74	1	SPRING-CAGE DISCONNECT TERMINAL BLOCK
29	4	TERMINAL, DBL LAYER SHORTED (6 WAY)
30	1	END COVER, DBL LAYER TERMINAL (6 WAY)
29	4	TERMINAL, DBL LAYER SHORTED (6 WAY)
30	1	END COVER, DBL LAYER TERMINAL (6 WAY)
24	1	POWER SUPPLY, 24 VOLT 1.25A, DC
15	4	SPRING GROUND TERMINAL
18	1	TERMINAL COVER, GROUND SPRING
16	1	END STOP TERMINAL

TERMINAL BLOCK LAYOUT (LEFT TO RIGHT)

PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
TB2 LAYOUT

DRAWING-NUMBER	REV
14021-084	A1

SIZE C | SCALE DO NOT SCALE DRAWING | SHEET 7 OF 13

071409REVE1

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FIT SCHEMATIC REQUIRED, 16021-105.

NOT FOR VENDOR USE
9801S-160 = OPERATOR INTERFACE 5.7 IN
PART OF 9801S-146 KIT

NOT FOR VENDOR USE
CABLE SUPPLIED WITH V-P VALVE

NOT FOR VENDOR USE
14021-103 - ASSY, VACUUM POWER CABLE

14021-101 - ASSY, THERMAL OVERLOAD CABLE

SELECT INPUTS CABLE TO BE 125 IN OUTSIDE OF ENC. LABEL LEADS AS SHOWN BELOW

14021-102 - ASSY, ENCODER CABLE

NOT FOR VENDOR USE
14021-099 - DIVERT/SOL. CABLE

NOT FOR VENDOR USE
14021-092 - FORM DETECT CABLE

CABLE SUPPLIED WITH GLUE SOLENOID, LENGTH TO BE 5 FT

NOT FOR VENDOR USE
GLUE SOLENOID

CABLES 9801S-137, 9801S-138, ENCODER AND MOTOR ARE PART OF KIT 9801S-146.

NOTE 16

CARD FEEDER

SEP. MOTOR CONNECTOR

CARD DETECT SENSOR

PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
SCHEMATIC

DRAWING-NUMBER
14021-084

REV
A1

SIZE D | SCALE DO NOT SCALE DRAWING | SHEET 8 OF 13

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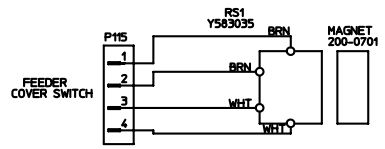
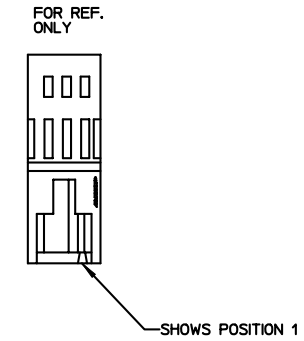
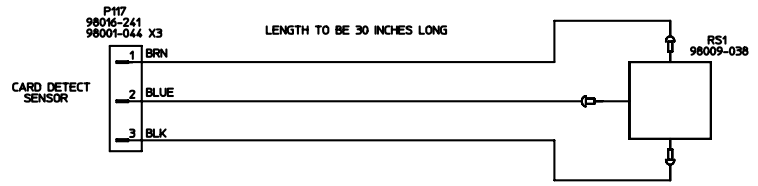
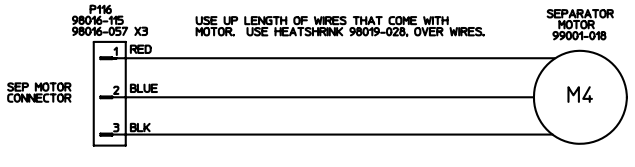
NOT FOR VENDOR USE



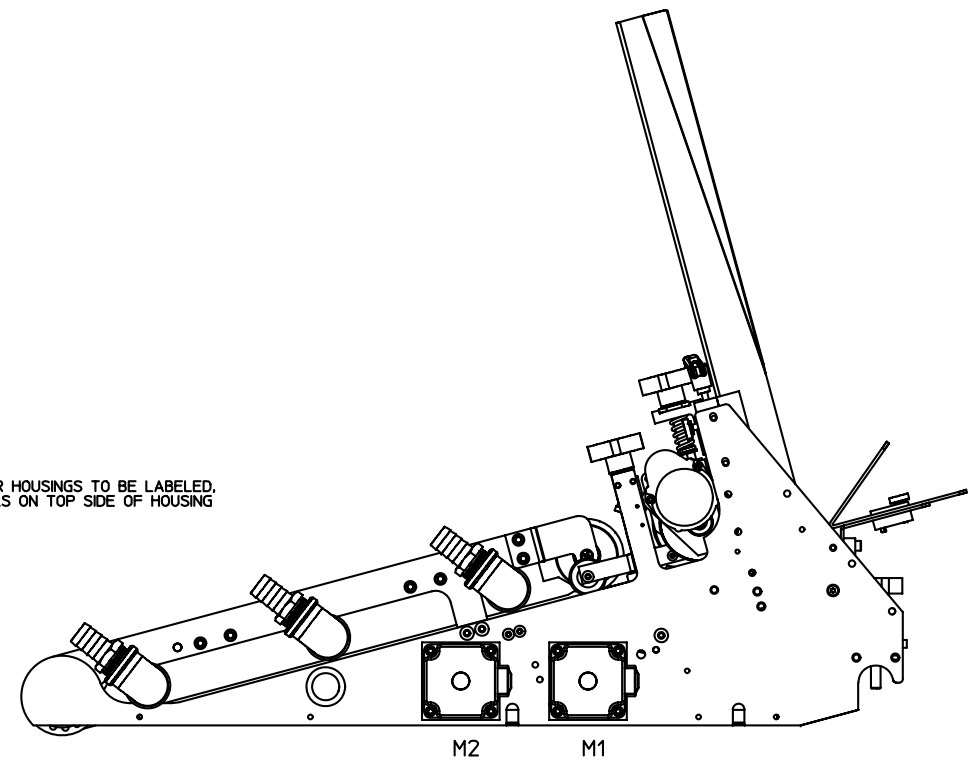


LABEL CONNECTORS ACCORDINGLY





SERVO MOTOR HOUSINGS TO BE LABELED, PLACE LABELS ON TOP SIDE OF HOUSING



PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER

DRAWING-NUMBER	REV
14021-084	A1

SIZE C | SCALE DO NOT SCALE DRAWING | SHEET 9 OF 13

042909REV01

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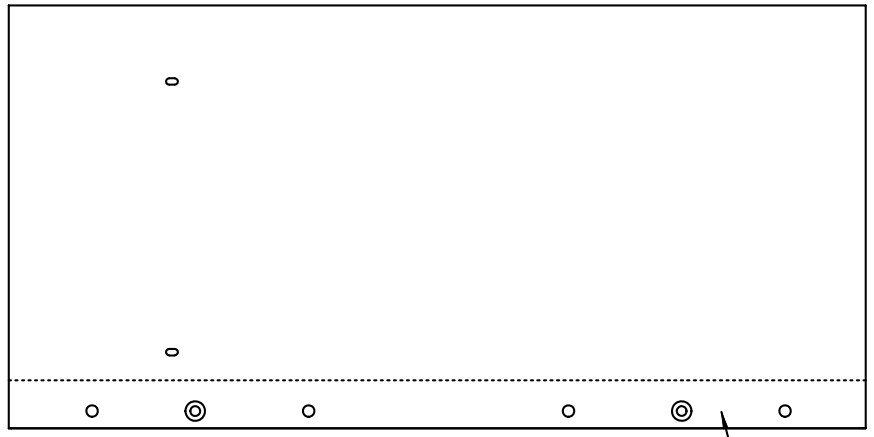
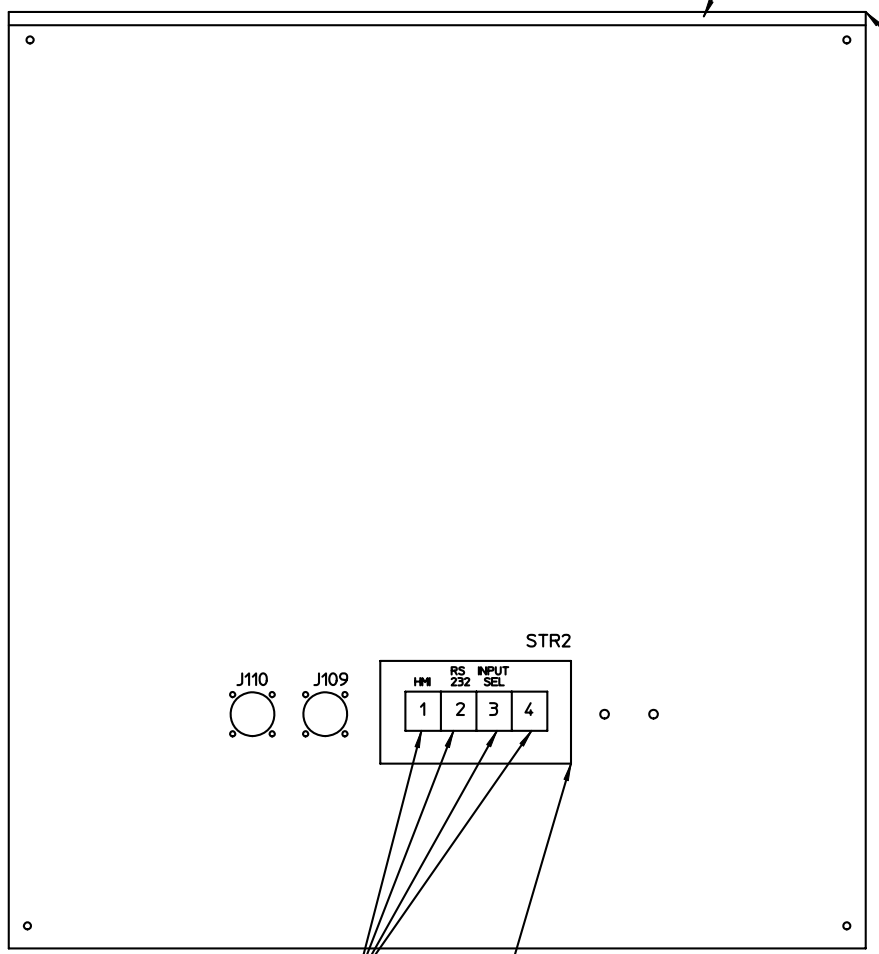
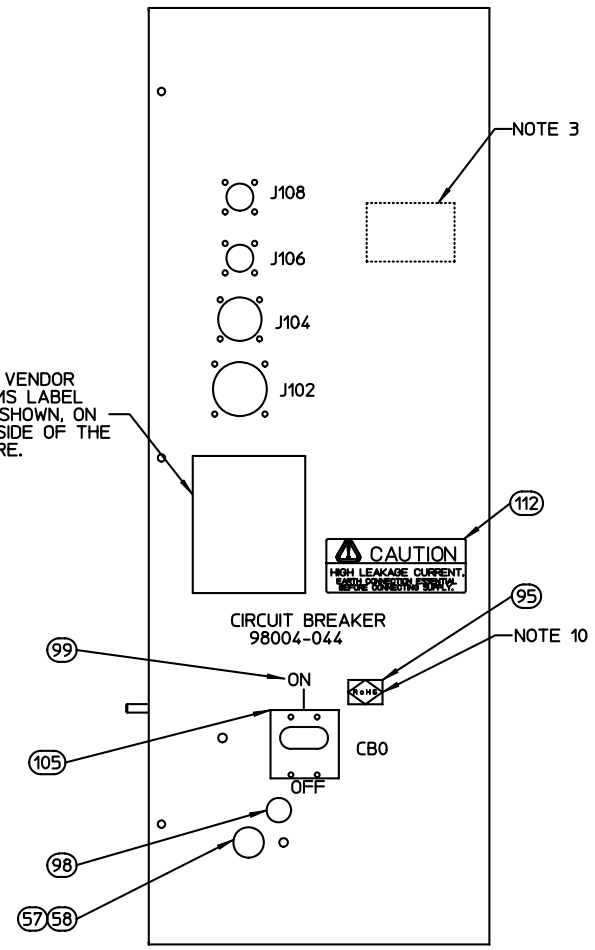
ENCLOSURE
TOP VIEW



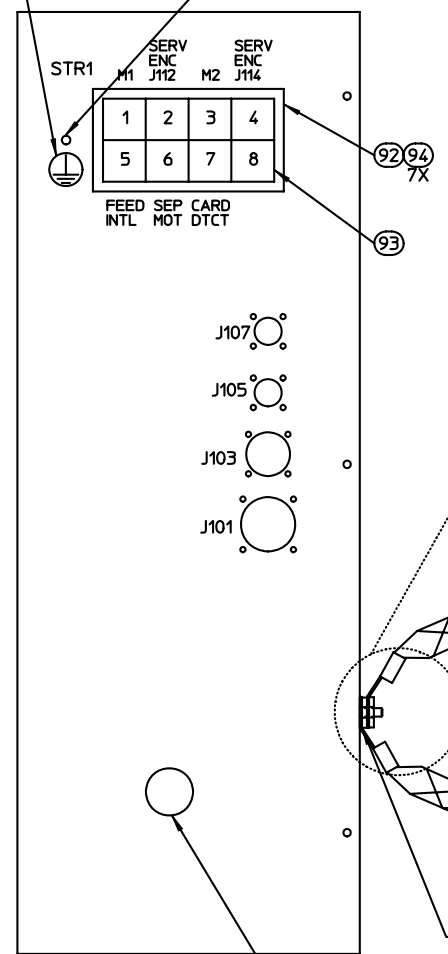
ENCLOSURE
FRONT VIEW
(INSIDE)

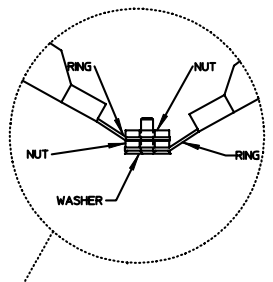


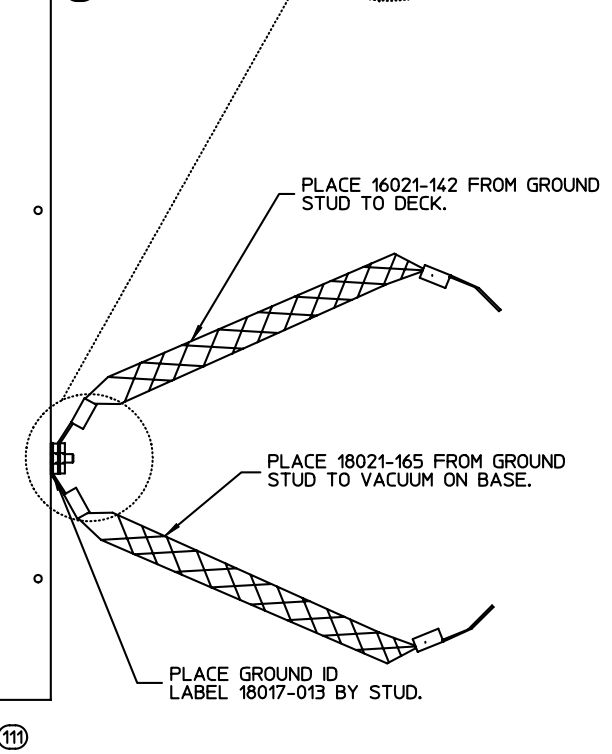
LEFT SIDE



RIGHT SIDE







PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
CABLE LOCATION

DRAWING-NUMBER	REV
14021-084	A1

SIZE C	SCALE DO NOT SCALE DRAWING	SHEET 10 OF 13

042909REV01

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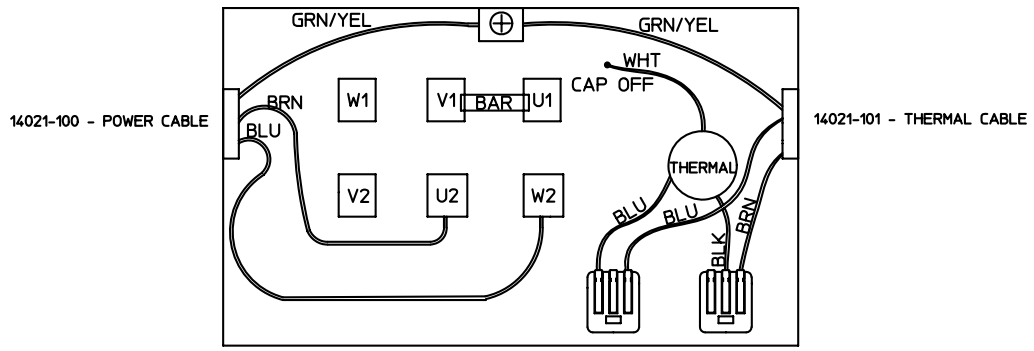
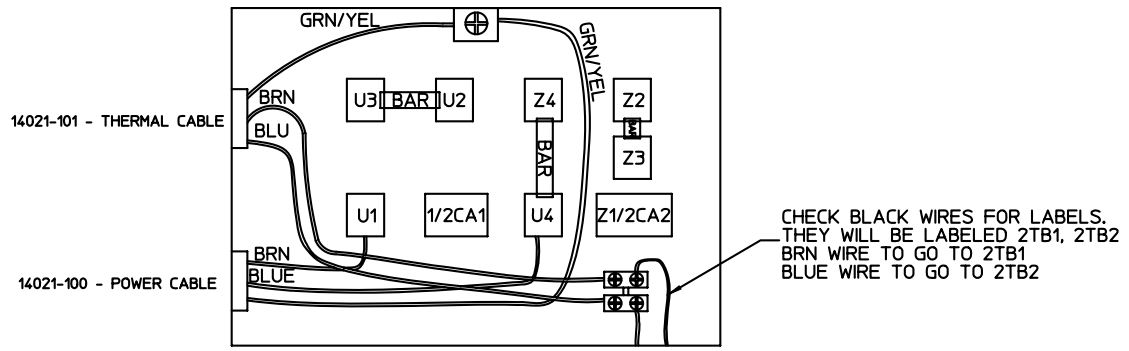
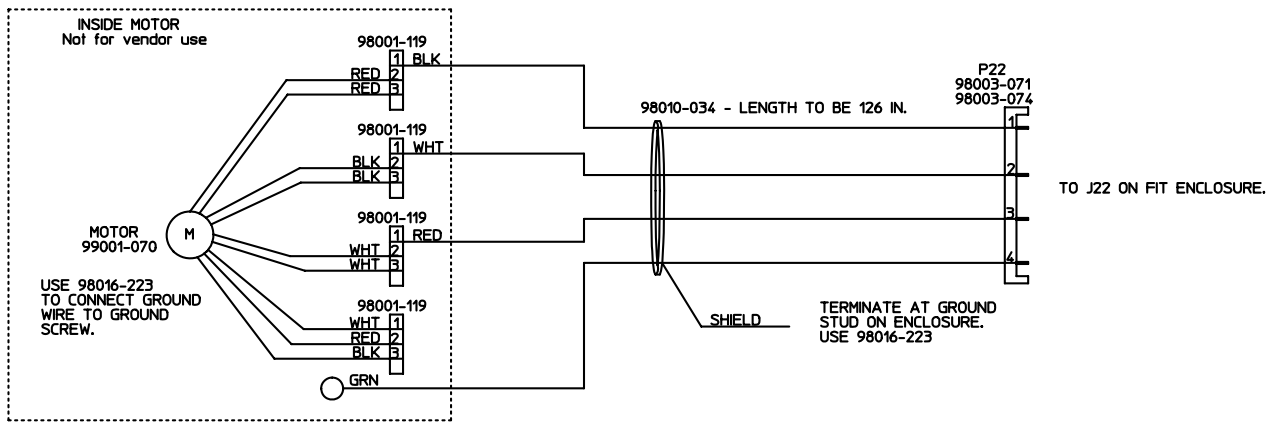
NOT FOR VENDOR USE

BLOWER
99029-015
RIETSCHLE

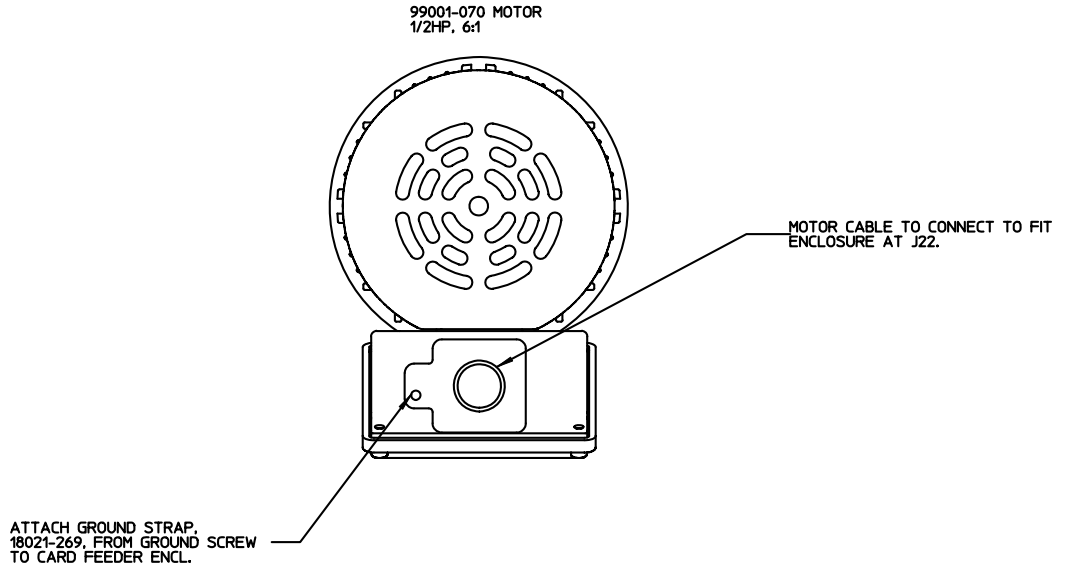


BLOWER
99029-015
AIRTECH





99001-070 MOTOR
1/2HP, 6:1



PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
DETAIL INSIDE MOTOR AND BLOWER

DRAWING-NUMBER	REV
14021-084	A1

SIZE C | SCALE DO NOT SCALE DRAWING | SHEET 11 OF 13

042909REV01

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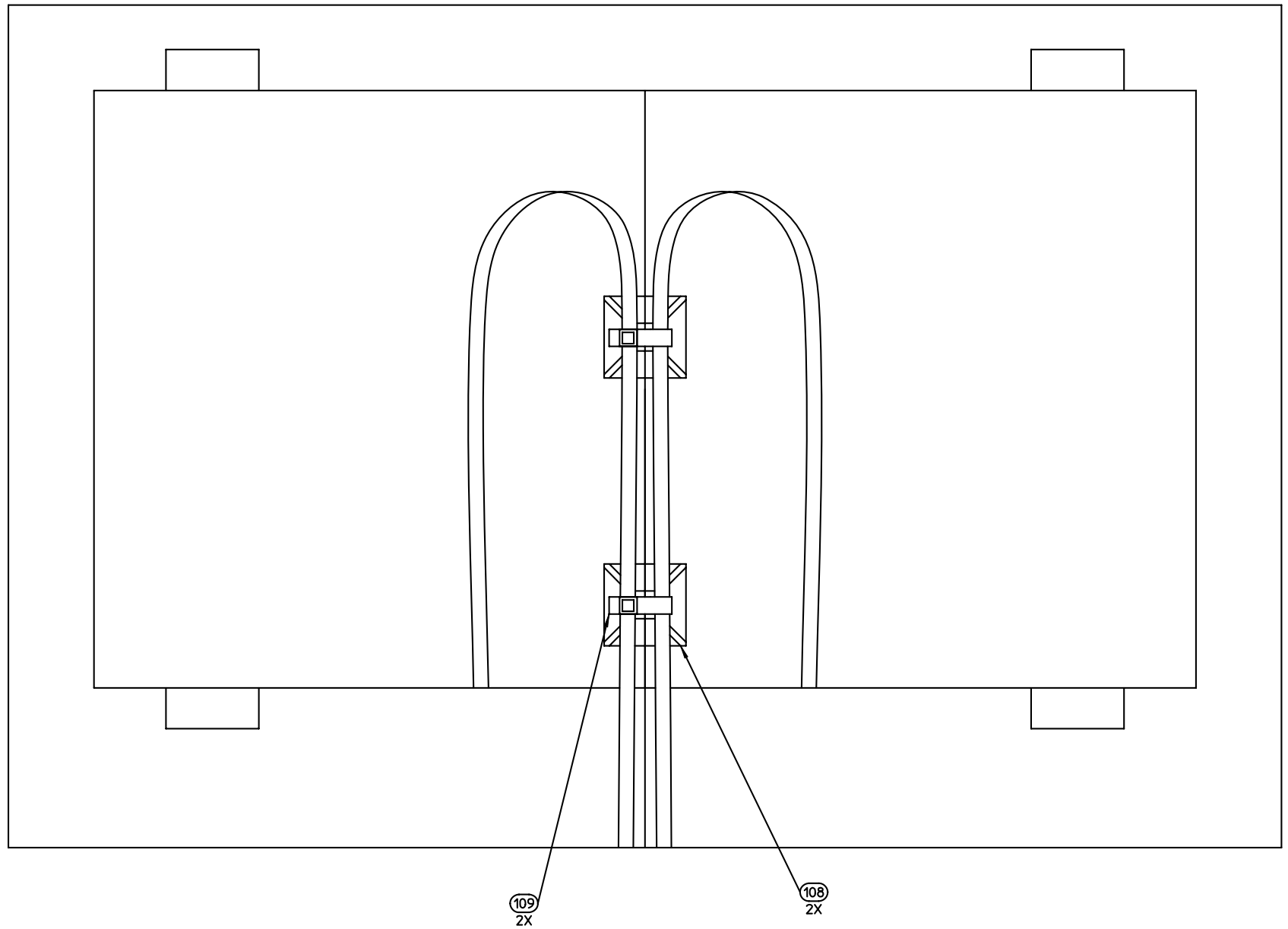

PITNEY BOWES

TITLE
APAS - ADVANCE PRODUCT ATTACHING SYSTEM
CARD FEEDER ENCLOSURE
HMI DETAIL CABLE ROUTING

DRAWING-NUMBER	REV
14021-084	A1

SIZE C | SCALE DO NOT SCALE DRAWING | SHEET 12 OF 13

042909REV01

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FOLD

STANDARD INTEGRATION CABLES NEEDED

14021-085 - ASSY, APAS TO BASE, 4 PIN INTEGRATION CABLE, APAS
14021-086 - ASSY, APAS TO BASE, 37 PIN INTEGRATION CABLE, APAS
14021-092 - ASSY, FORM DETECT CABLE
14021-102 - ASSY, ENCODER CABLE

CHANGES TO FIT ENCLOSURE

WHEN INTEGRATING THE FIT ENCLOSURE TO THE APAS CARD FEEDER ENCLOSURE, REMOVE THE FOLLOWING COMPONENTS.

DRYER CABLE ALONG WITH CONNECTOR, THE CABLE IS LABELED J7.
SENSOR CABLE LABELED P8.

WHEN INTEGRATING THE FIT ENCLOSURE TO THE APAS CARD FEEDER ENCLOSURE, REPLACE P0 (98003-010) WITH 98003-017, CUT CABLE TO 22 INCHES. THIS CABLE WILL THEN BE PLUGGED INTO J100 ON THE APAS CARD FEEDER ENCLOSURE,
REPLACE CB1 AND CB3 WITH 6A CIRCUIT BREAKERS,
REPLACE CB2 AND CB4 WITH 10A CIRCUIT BREAKERS,
REMOVE WIRE FROM TB3.4A TO TB3.14A
JUMPERS ON TB1 SHALL BE SET TO 230V CONFIGURATION.

ADD BRAKE RESISTOR 98013-151,
FOR WIRING SEE DRAWING 16021-105.

CHANGES TO APAS IF SECOND CARD FEEDER IS PRESENT

ON 2ND CARD FEEDER ENCLOSURE,
REMOVE STR3 (98015 -002),
ADD HOLE SEAL (14013-076).

ADD THE FOLLOWING
14021-090 - APAS TO APAS, 37 PIN INTEGRATION CABLE,
14021-091 - APAS TO APAS, 4 PIN INTEGRATION CABLE,
14021-093 - ASSY, FORM DETECT CABLE, TWO CARD FEEDER CABLE,
14021-103 - ASSY, ENCODER CABLE, 2 CARD FEEDERS EXTENSION

PITNEY BOWES

TITLE	
APAS - ADVANCE PRODUCT ATTACHING SYSTEM CARD FEEDER ENCLOSURE INTEGRATION	
DRAWING-NUMBER 14021-084	REV A1
SIZE C | SCALE DO NOT SCALE DRAWING	SHEET 13 OF 13

042909REV01

Pitney Bowes
Direct Mail Solutions

PRELIMINARY

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ITEM	DMS PART NUMBER	DESCRIPTION	QTY
62	98016-216	QUICK DISCONNECT, 0.250 FEMALE, 18-22 AWG (RED)	4
61	98016-217	QUICK DISCONNECT, 0.187 FEMALE, 18-22 AWG (RED)	5
60	16015-038	LABEL 120 VAC 3.15 A	OPT
59	98016-093	RECEPTACLE, SQ. FLANGE, 17-9 POS	5
58	98015-001	STRAIN RELIEF, 1/2"	2
57	98015-003	METAL LOCKNUT, 1/2"	2
56	98016-011	RECEPTACLE, SQ. FLANGE, 11-4 STD	4
55	98016-091	RECEPTACLE, SQ. FLANGE, 17-14 POS.	1
54	98016-103	RECEPTACLE, SQ. FL, 37 POSITION	3
53	98010-253	14-3C FLEX CORD EURO CC W/G TYPE STOW	15 FT
52	98020-045	RESISTOR, 1K	1
51	98010-254	18-3C FLEX CORD EURO CC W/G TYPE STOW	15 FT
50	98015-027	CORD GRIP, 1/4" GRAY	3
49	98010-226	CORDSET, 4 SOCKET PICO, WITH LEADS, 5M	3
48	98010-033	WIRE, #14AWG, 600V GRN/YEL	6 FT
47	98010-108	WIRE, #22AWG, 600V WHT/BLK	30 FT
46	98010-209	WIRE, #22AWG, 600V WHT/BLUE	20 FT
45	98010-104	WIRE, #22AWG, 600V BLUE	20 FT
44	98010-208	WIRE, #18AWG, 600V WHT/BLUE	16 FT
43	98010-132	WIRE, #16AWG, 600V BLK	7 FT
42	98010-121	WIRE, #18AWG, 600V BLUE	7 FT
41	98010-022	WIRE, #12AWG, 600V BLK	9 FT
40	98010-197	WIRE #18AWG, 600V GRN/YEL	7 FT
39	98010-206	WIRE, #18AWG, 600V VIO	4 FT
38	98016-221	TERMINAL RING, #8, 14-16 AWG (BLUE)	2
37	98016-219	QUICK DISCONNECT, 0.250 FEMALE, 14-16 AWG (BLUE)	16
36	16021-142	ASSY, GROUND STRAP, 40"	1
35	98004-089	CIRCUIT BREAKER, 4A	2
34	98001-126	FUSE HOLDER, POP OFF	8
33	98001-129	BRIDGE 3 POSITION, TERMINAL	1
32	98001-145	JUMPER, 3 POLE, FUSE TERMINAL	2
31	98001-130	BRIDGE 2 POSITION, TERMINAL	4
30	98001-137	END COVER, DBL LAYER (6 WAY)	3
29	98001-135	TERMINAL, DBL LAYER SHORTED (6 WAY)	14
28	98001-139	TERMINAL, DBL LAYER (6 WAY)	23
27	98002-058	RELAY, DPDT, 24VDC, W/DINRAIL BASE	4
26	98002-048	OPTO, INPUT MODULE, 24VDC, W/ DINRAIL BASE	2
25	98002-049	OPTO, OUTPUT MODULE, 24VDC, W/ DINRAIL BASE	2
24	98011-018	POWER SUPPLY, 24 V 1.25 A, DC	1
23	98013-054	PLC FX SERIES	1
22	98013-133	INVERTER, 1HP, MOTOR CONTROLLER	1
21	98001-114	SPRING CAGE, TERMINAL BLOCK CIRCUIT BREAKERS	4
20	98002-060	RELAY, DPDT, 30A, 24VDC	2
19	98019-068	STRAIGHT PRESSURE TONGUE, GROUND LUG	3
18	98001-140	END COVER, GROUND TERMINAL	4
17	98001-136	END COVER, DBL LAYER SHORTED (4 WAY)	2
16	98001-132	END COVER, 3 WIRE, FUSE DISCONNECT	2
15	98001-123	END STOP TERMINAL	10
14	98001-138	SPRING GROUND TERMINAL	7
13	98001-131	TERMINAL, 3 WIRE, FUSE DISCONNECT	8
12	98001-134	TERMINAL, DBL LAYER SHORTED (4 WAY)	5
11	98003-070	FEMALE INSERT, 3-POSITION, SCREW CONNECTION	1
10	98003-072	PANEL MOUNTING BASE, WITH SINGLE LOCKING LATCH	1
9	98020-104	LINE FILTER, 16A	1
8	98008-026	TRANSFORMER, 234/117V	1
7	98001-022	DIN RAIL	3.5 FT
6	98012-008	DUCT, WIRE WITH COVER 1" X 3", HIGH DENSITY	10.2 FT
5	98016-222	TERMINAL RING, 1/4, 14-16 AWG (BLUE)	3
4	16009-180	TRANSFORMER BRACKET, FIT CONTROL ENCLOSURE	1
3	12013-050	BACK PANEL, FIT CONTROL PANEL ENCLOSURE	1
2	16013-290	FIT MAIN CONTROL ENCLOSURE COVER	1
1	16013-288	FIT MAIN CONTROL ENCLOSURE	1

ITEM	DMS PART NUMBER	DESCRIPTION	QTY
120	88-0305	PLUG DOME .500 DIA HOLE	1
119	16009-071	BRACKET, 2 POLE BREAKER	1
118	98010-130	WIRE, UL1015, AWG-16, GRN/YEL	5 FT
117	-	WIRE LABELS	370
116	-	MARKER, ZBF, 5 mm, 21-30, WHT	1
115	-	MARKER, ZBF, 5 mm, 11-20, WHT	1
114	-	MARKER, ZBF, 5 mm, 1-10, WHT	2
113	-	WIRE, 16 AWG, GRN/YEL	5.2 FT
112	-	MARKER, MINI WSB, 1-10, WHT	1
111	-	MARKER, EML, 17.5x8mm, WHT	18
110	-	MARKER, EML, 10x7mm, WHT	55
109	-	MARKER, TMT, 6 mm, WHT	12
108	-	MARKER, ZACK, 5 mm, 1-9, WHT	1
107	-	HEAT SHRINK TUBING & SLEEVES 3/64" BLK	2.25 IN
106	-	HEAT SHRINK TUBING & SLEEVES 3/16" BLK	6 IN
105	98020-031	DIODE	1
104	AW18029	ROHS LABEL, 2.0" X 1.5"	1
103	98010-109	WIRE, #22AWG, WHT/RED, 600V	1 FT
102	98010-112	WIRE, #22AWG, WHT/VIO, 600V	6 FT
101	98010-144	GROUND STRAP, 240, 1/2" TC FLAT	20 IN
100	98001-116	TERMINAL, RING, 3/8", 6AWG	1
99	18017-013	LABEL, GROUND SYMBOL (GRN/YEL) (TUV)	3
98	98013-151	DYANAMIC BRAKE RESISTOR	OPT
97	98004-090	CIRCUIT BREAKER, 6A	2
96	98003-100	PLUG, 230V, 16A, CHINA	OPT
95	98003-099	PLUG, 230V, 16A, UK	OPT
94	98003-060	PLUG, 230V, 15A, EUROPE	OPT
93	98003-008	PLUG, 230V, 10A, NEMA 6-15P	OPT
92	16008-214	BAR, ENCLOSURE MTG.	1
91	99039-069	HIGH VOLTAGE DECALS	1
90	98020-107	FILTER - RFI, 115/250V, 3A	1
89	98003-049	RECEPTACLE, AC, IEC-320	OPT
88	16008-218	BAR, BOARD BLANK, FIT BASE	1
87	16011-373	IEC-320, COVER PLATE	1
86	98000-121	SWITCH, DPDT, ON-ON	1
85	98016-224	TERMINAL RING, #10, 18-22 AWG	3
84	98020-037	CAP, MOUTING HARDWARE	1
83	98020-036	CAPACITOR, 2200uF	1
82	98019-067	HEAT SHRINK, 5/16", PVC BLK	6 IN
81	98019-045	HEAT SHRINK, 1/4", PVC BLK	6 IN
80	98016-223	TERMINAL RING, #10, 14-16 AWG (BLUE)	1
79	98003-018	RECEPTACLE, TWIST LOCK	1
78	98001-108	SIDE COVER, DUAL TERMINAL BLOCK	1
77	98001-107	TERMINAL BLOCK, DUAL, SPRING CAGE DISCONNECT	4
76	98001-073	BRIDGE 2 POSITION	2
75	98016-002	RECEPTACLE, SQ. FLANGE, SERIES 3, 17-3	1
74	98016-060	CONTACT, SOCKET, 18-14 AWG	4
73	98020-038	RESISTOR, POWER, 15 OHM, 50W	1
72	98016-027	CONTACT, SOCKET, 24-20 AWG	129
71	98016-028	CONTACT, SOCKET, 16-12 AWG	3
70	98015-023	FINISHING PLUG, 7/8" HOLE	3
69	98004-096	FUSE, 5X20, 3.15 A- SLO-BLO	2
68	98001-025	TERMINAL, RING, 1/4", 6 AWG	1
67	98004-070	FUSE, 5 X 20, TIME DELAY 1.25A	5
66	98004-019	FUSE, 500 mA, 250V 5X20MM GMC TIME DELAY	1
65	98003-038	PLUG, 20AMP, 125V, NEMA 5-20	1
64	98004-098	CIRCUIT BREAKER, 15 AMP, 2 POLE	1
63	98001-143	BRIDGE 4 POSITION TERMINAL	1

REF
XXXXXXX

LOC	SYM	CHANGE DESCRIPTION, COMPLETED BY	CHANGE NOTICE	DATE
XXX	B1	ADDED REFDES TO LAYOUT PAGES, ADDED P/N TO SCHEMATIC, ADDED FL2,CHANGED SOME WIRING IN CONTROL PANEL AND ENCLOSURE - H. MANZANO	NA	04/03/09
XXX	B2	CORRECTED F3 ON SCH. CHANGED FUSE SIZE FOR F1 AND F2 TO 1.25A - H. MANZANO	NA	04/17/09
XXX	C	ADDED R2 AND CHANGED SOME WIRE COLORS-H.MANZANO	NA	05/14/09
XXX	C1	CHANGED MANUFACTURERS FOR 98010-253 and 98010-254 H.MANZANO	NA	05/15/09
XXX	C2	ADDED SAFETY LABEL AND SECAP LABEL-H.MANZANO	NA	06/11/09
XXX	C3	CHANGED THE BLOWER WIRING TO LINE SIDE OF TRANSFORMER - G. SCULTHORPE	NA	09/02/09
XXX	D	CHANGED MTR1 CONN. THIS WAY CONTACTS OPEN WHEN DRIVE FAULTS.CHANGED CB1 AND CB3 TO 4A G. SCULTHORPE	NA	09/08/09
XXX	D1	ADDED OPTION FOR DYANAMIC BRAKE FOR FIT ATTACHER. CHANGED CB2 AND CB4 TO 6A-G. SCULTHORPE	NA	10/08/09
XXX	D2	TERMINATED WIRE FROM TB3.25B AT 24V-H.MANZANO	XX	10/28/09
XXX	D3	Changed plug to 98003-038 and UK plug to 98003-099 Changed wiring for J22, changed quantities on part list H.MANZANO	E4, E8	11/05/09
XXX	E	Replaced opto 98013-015 with 98002-048, replaced 98020-070 with 98002-049, changed vendor part number for item 49-H.MANZANO	E60	04/22/10
XXX	E1	CHANGED WIRING FOR OPTO 2-H.MANZANO	E79	10/04/10
XXX	F	REMOVE JUMPER WIRE FROM TB3.9B AND TB3.12B AND DISCARD. MOVE WIRE COMING FROM J1.17, FROM TB3.9B AND TERMINATE AT TB3.12B, CHANGED 230V T1 JUMPERS TO SHOW CORRECT TERMINATIONS.DWG BOM ONLY, NO WC BOM - H. MANZANO	CN031300	04/26/11
PG8,H4 PG9,C5	G	WHT/BLK WIRE FROM J16.4 IS NOW TERMINATED AT 0V, ADDED P24, P25 SENSORS AND STRAIN RELIEVES, ADDED 0V CONNECTIONS TO J5 AND J6, ADDED ITEM 120 - H.MANZANO	CN031640	06/21/11

NOTES

1. UNLESS OTHERWISE SPECIFIED, TOLERANCE ON CUT WIRE LENGTHS SHALL BE AS FOLLOWS:
   DIMENSION RANGE(IN.) TOLERANCE(IN.)
   1 TO 36 +/-0.25
   ABOVE 36 TO 196 +1.0/-0.5
2. IDENTIFICATION: WHERE DESIGNATED ALL CONNECTORS/COMPONENTS SHALL BE INDELIBLY MARKED APPROXIMATELY. COMPONENTS SHALL BE MARKED ON COMPONENT AND ON BACK PLATE. WHERE DESIGNATED ALL WIRES SHALL BE INDELIBLY MARKED PER CONNECTOR PIN LOCATION. CABLES LEAVING ENCLOSURE THROUGH A STRAIN RELIEF SHALL BE MARKED ACCORDING TO ITS CONNECTOR DESIGNATION.
3. ASSEMBLY SHALL BE MARKED TO INCLUDE THE FOLLOWING INFORMATION: DMS PART NUMBER, REVISION LEVEL, AND VENDOR NAME AND/OR LOGO.
4. COMPLETED ASSEMBLY SHALL BE 100% TESTED FOR OPEN, SHORTS, MISWIRES, AND FOR PIN TO PIN CONTINUITY AFTER ASSEMBLY.
5. CRIMPS ON COMPLETED ASSY TO PASS A PULL TEST PER MANUFACTURER'S SPECS. CRIMP HEIGHT OF TERMINALS TO BE PER MANUFACTURER'S SPECS.
6. THERE SHALL BE NO PROCESS MATERIAL OR GEOMETRIC CHANGES IN THE FABRICATION OF THIS PART AS HEREIN SPECIFIED WITHOUT THE WRITTEN CONSENT OF PITNEY BOWES.
7. IN THE EVENT OF A CONFLICT BETWEEN THIS SPECIFICATION AND THE VENDOR'S DOCUMENTATION. THIS SPECIFICATION SHALL TAKE PRECEDENCE.
8. NO SUBSTITUTIONS OF MATERIALS OR ASSEMBLY VENDORS ARE ACCEPTABLE. MATERIAL VENDORS ARE REFERENCED IN PB STANDARD SHEETS. ASSEMBLY VENDOR IS REFERENCED IN THE PB PIMS DATABASE ASSEMBLY REQUIREMENTS ARE DOCUMENTED IN PB STANDARDS ES1052. CONTACT PB PROCUREMENT FOR DETAIL.
9. WORKMANSHIP SHALL BE TO THE MANUFACTURER'S PROCESS STANDARDS, NFPA 70, NFPA 79, AND TO ANSI/IPC-A-610A, CLASS2, WHEN APPLICABLE.
10. THIS ASSEMBLY AND IT'S COMPONENTS MUST COMPLY WITH PITNEY BOWES STD2006.
11. TERMINATE ONE SIDE OF RESISTOR IN OPTO3.2, SOLDER WIRE TO THE LEAD GOING TO 0V. HEATSHRINK RESISTOR AND SOLDERED AREA.
12. INSTALL FIT BASE MOUNTING BAR, BEFORE SHIPPING TO PITNEY BOWES.
13. THIS IS AN EXAMPLE OF GROUNDING ENCLOSURE TO FIT BASE, FOR REGISTRATION TABLE, GROUND SHOULD BE RUN TO MOTOR BRACKET.
14. DBR1 TO BE USED FOR FIT ATTACHER ONLY, INSTALL AS NEEDED.
15. ASSEMBLY TO INCLUDE TAMPER PROOF SEAL. PLACEMENT OF SEAL SHALL BE HALF ON COVER AND HALF ON ENCLOSURE.

Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE B1850	CLASSIFICATION OF CHARACTERISTICS PER PB B1525	
TOLERANCES: THREE PLACE DECIMALS ± .005; TWO PLACE DECIMALS ± .01; ONE PLACE DECIMALS ± .03	CRITICAL	NONE
	MAJOR	NONE
	MINOR	ALL OTHER CHARACTERISTICS
Pitney Bowes	DRAWING STANDARDS PER ASME Y14.5M-1994	
	DO NOT SCALE THIS DRAWING	DWG SIZE C

TITLE ASSY, MAIN ELECTRICAL ENCLOSURE

MATERIAL See Bill of Material		THIRD ANGLE PROJECTION
FINISH NONE	PCN NONE	DWG NO. 16021-105
HEAT TREAT NONE	SCALE NONE	SHEET 1 OF 12 REV G.2

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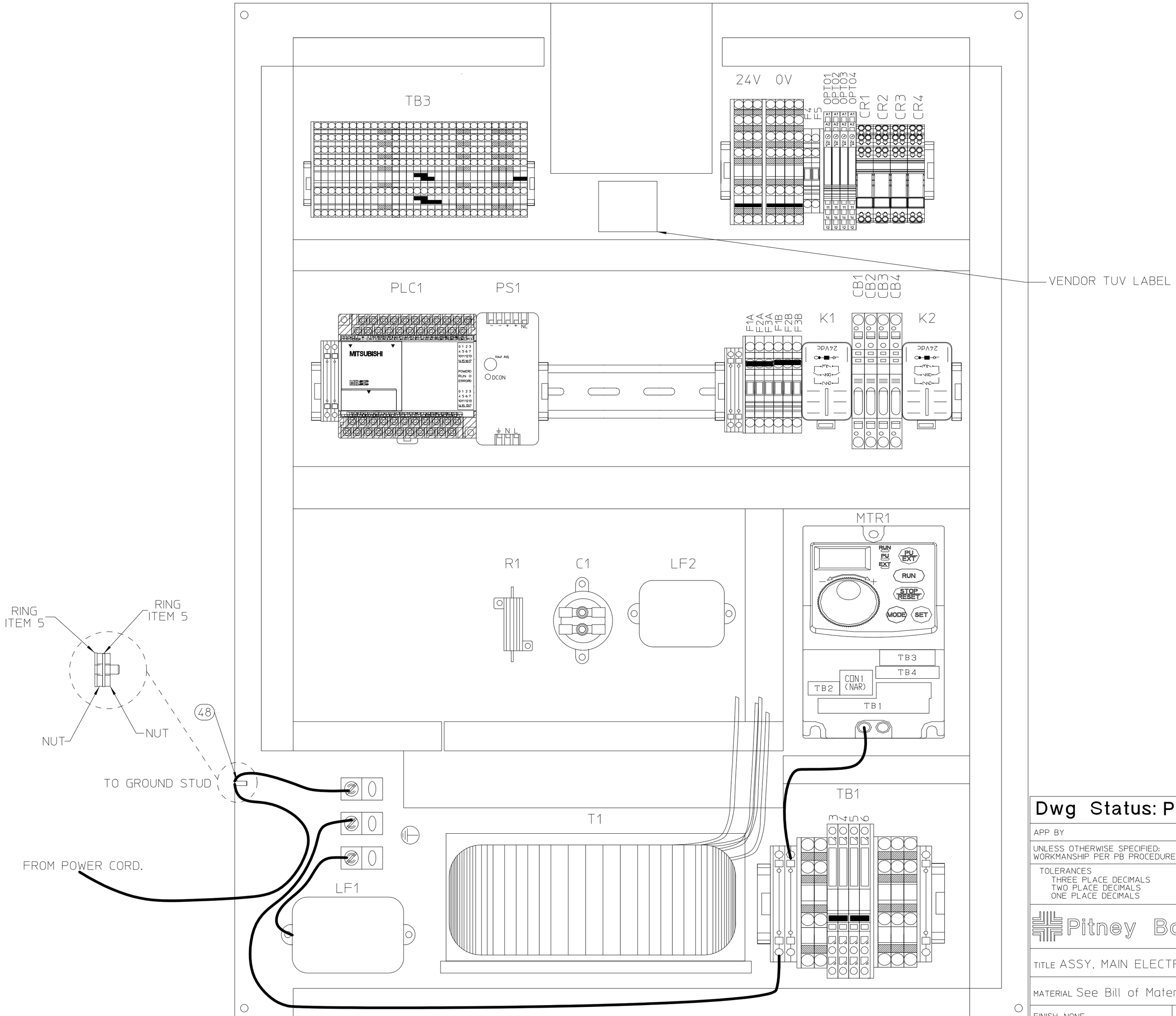
REF
XXXXXXX

LOC	SYM	CHANGE DESCRIPTION, COMPLETED BY	CHANGE NOTICE	DATE
XXX	XX	SEE PAGE 1.	XX	ddMMMyy



Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE B1850	CLASSIFICATION OF CHARACTERISTICS PER PB B1525	
TOLERANCES THREE PLACE DECIMALS ± .005 TWO PLACE DECIMALS ± .01 ONE PLACE DECIMALS ± .03	CRITICAL	NONE
	MAJOR	NONE
	MINOR	ALL OTHER CHARACTERISTICS
Pitney Bowes	DRAWING STANDARDS PER ASME Y14.5M-1994	
	DO NOT SCALE THIS DRAWING	DWG SIZE C

TITLE ASSY, MAIN ELECTRICAL ENCLOSURE

MATERIAL See Bill of Material		THIRD ANGLE PROJECTION
FINISH NONE	PCN NONE	DWG NO. 16021-105
HEAT TREAT NONE	SCALE NONE	SHEET 2 OF 12 REV G.2

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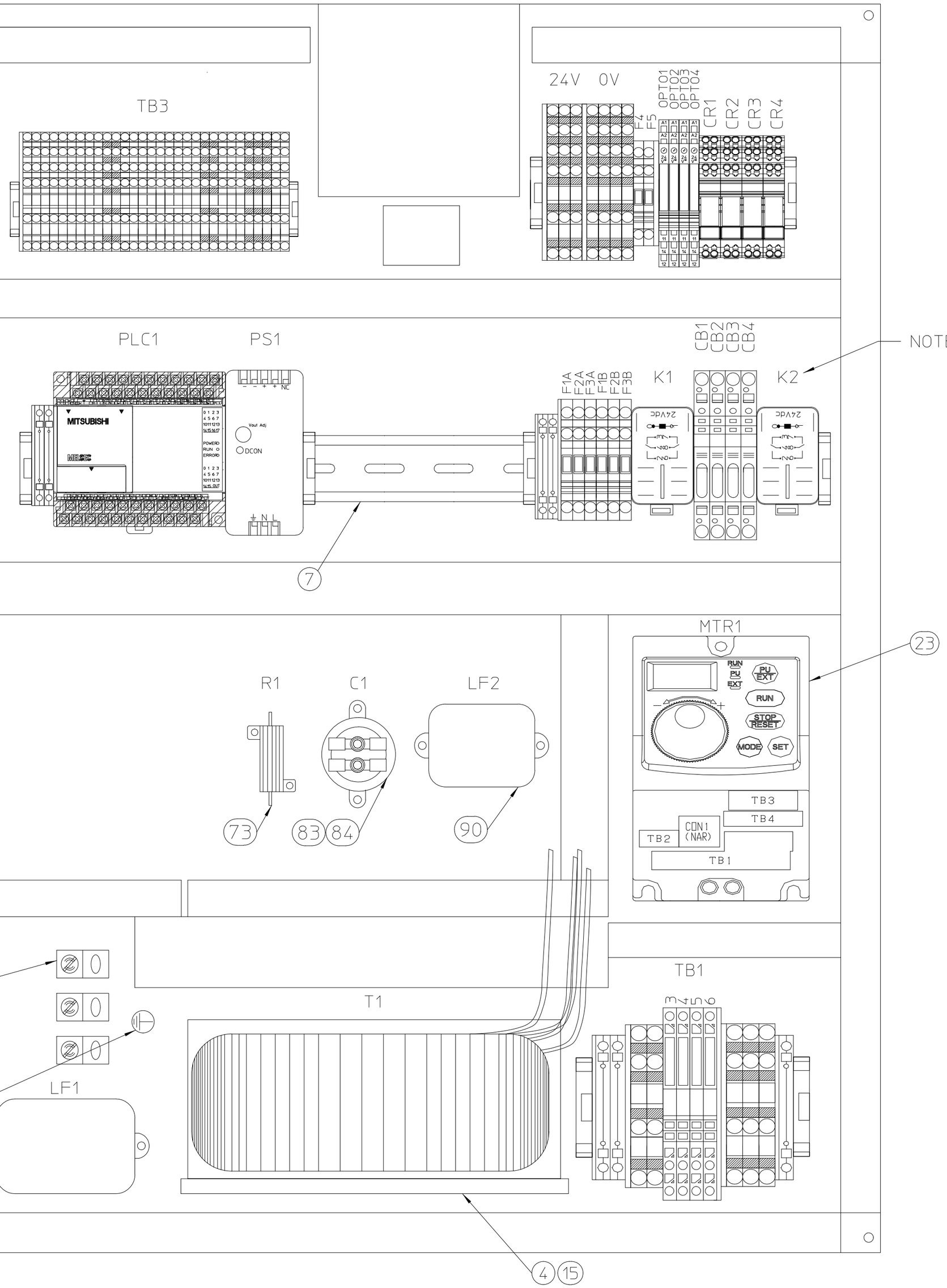

Dwg Status: PRODUCTION

APP BY		APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE B1850		CLASSIFICATION OF CHARACTERISTICS PER PB B1525	
TOLERANCES		CRITICAL	NONE
THREE PLACE DECIMALS	± .005	MAJOR	NONE
TWO PLACE DECIMALS	± .01		
ONE PLACE DECIMALS	± .03	MINOR	ALL OTHER CHARACTERISTICS
Pitney Bowes		DRAWING STANDARDS PER ASME Y14.5M-1994	
		DO NOT SCALE THIS DRAWING	DWG SIZE C

TITLE ASSY, MAIN ELECTRICAL ENCLOSURE

MATERIAL See Bill of Material		THIRD ANGLE PROJECTION	
FINISH NONE	PCN NONE	DWG NO. 16021-105	
HEAT TREAT NONE	SCALE NONE	SHEET 3 OF 12	REV G.2

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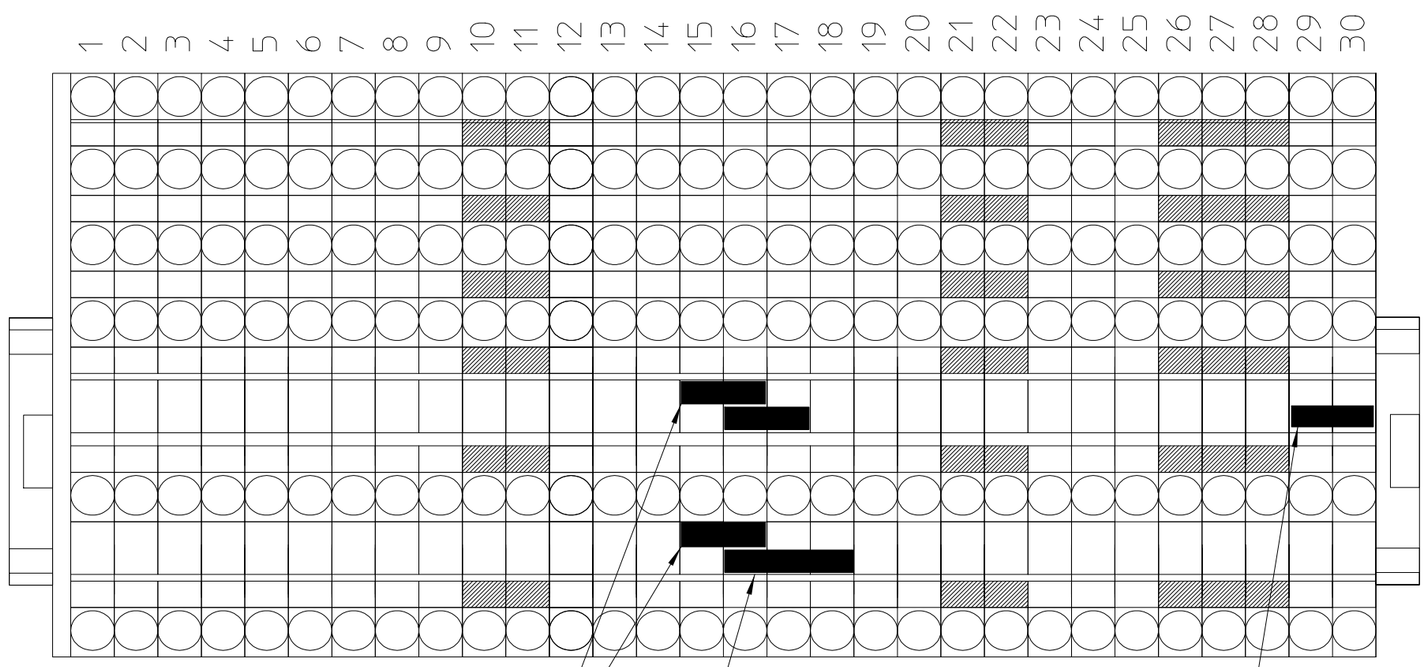
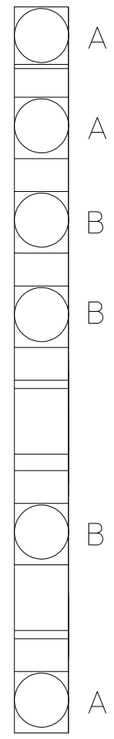
LOC	SYM	CHANGE DESCRIPTION, COMPLETED BY	CHANGE NOTICE	DATE
XXX	XX	SEE PAGE 1.	XX	ddMMMyy

NOTE:
TERMINAL BLOCKS SHOWN,
ARE WAGO BLOCKS. ALTERNATE
COMPONENTS MAY LOOK DIFFERENT.

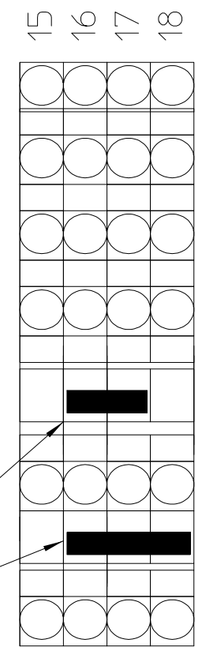
TB3



JUMPERS (TB3.15 - TB3.17)
SHOWN WITH FEEDER
AND CONVEYOR NOT CONNECTED



NOTE:
IF 2 BASES ARE HOOKED TOGETHER,
PLACE TWO 2 POSITION JUMPER (98001-130)
IN TB3.2B TO TB3.3B AND TB3.23B TO TB3.24B.



JUMPERS (TB3.15 - TB3.17)
SHOWN WITH FEEDER
AND CONVEYOR CONNECTED

FOR MANUFACTURING PURPOSES ONLY

ITEM NO.	QTY	DESCRIPTION
15	1	End stop terminal
28	2	Terminal, dbl layer (6 way)
29	3	Terminal, dbl layer shorted (6 way)
28	3	Terminal, dbl layer (6 way)
29	2	Terminal, dbl layer shorted (6 way)
28	9	Terminal, dbl layer (6 way)
29	2	Terminal, dbl layer shorted (6 way)
28	9	Terminal, dbl layer (6 way)
30	1	End cover, dbl layer terminal (6 way)
15	1	End stop terminal

TERMINAL BLOCK LAYOUT (LEFT TO RIGHT)

Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE B1850	CLASSIFICATION OF CHARACTERISTICS PER PB B1525	
TOLERANCES THREE PLACE DECIMALS ± .005 TWO PLACE DECIMALS ± .01 ONE PLACE DECIMALS ± .03	CRITICAL	NONE
	MAJOR	NONE
	MINOR	ALL OTHER CHARACTERISTICS
Pitney Bowes	DRAWING STANDARDS PER ASME Y14.5M-1994	
	DO NOT SCALE THIS DRAWING	DWG SIZE C
TITLE ASSY, MAIN ELECTRICAL ENCLOSURE		
MATERIAL See Bill of Material	THIRD ANGLE PROJECTION	
FINISH NONE / PCN NONE	DWG NO. 16021-105	
HEAT TREAT NONE / SCALE NONE	SHEET 4 OF 12	REV G.2

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REF
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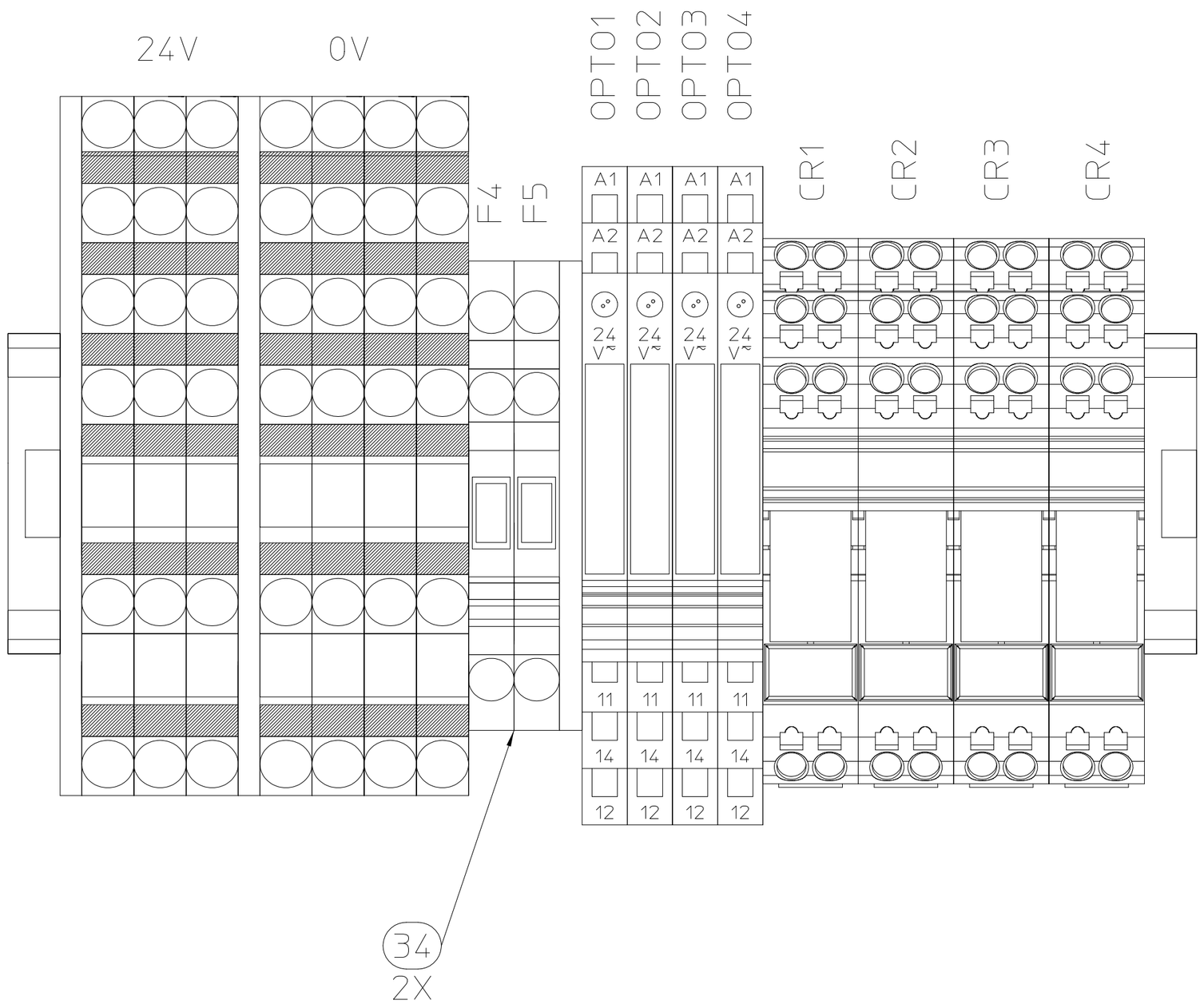
LOC	SYM	CHANGE DESCRIPTION, COMPLETED BY	CHANGE NOTICE	DATE
XXX	XX	SEE PAGE 1.	XX	ddMMMyy

NOTE:
TERMINAL BLOCKS SHOWN,
ARE WAGO BLOCKS. ALTERNATE
COMPONENTS MAY LOOK DIFFERENT.
IF USING PHOENIX FUSE BLOCKS,
THEN A SIDE COVER IS NOT NEEDED
BETWEEN F5 AND OPT01.



FOR MANUFACTURING PURPOSES ONLY

ITEM NO.	QTY	DESCRIPTION
15	1	END STOP TERMINAL
27	4	RELAY, DPDT, 24V AC/DC, DINRAIL BASE
25	2	OPTO, OUTPUT MODULE, 24VDC, W/ DINRAIL BASE
26	2	OPTO, INPUT MODULE, 24VDC, W/ DINRAIL BASE
16	1	TERMINAL COVER, 3 WIRE FUSE DISCONNECT
13	2	TERMINAL, 3 WIRE FUSE DISCONNECT
29	4	TERMINAL, DBL LAYER SHORTED (6 WAY)
30	1	END COVER, DBL LAYER TERMINAL (6 WAY)
29	3	TERMINAL,DBL LAYER (6 WAY)
30	1	END COVER, DBL LAYER TERMINAL (6 WAY)
15	1	END STOP TERMINAL

TERMINAL BLOCK LAYOUT (Left to Right)

Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE

UNLESS OTHERWISE SPECIFIED:
WORKMANSHIP PER PB PROCEDURE B1850

TOLERANCES
THREE PLACE DECIMALS ± .005
TWO PLACE DECIMALS ± .01
ONE PLACE DECIMALS ± .03

CLASSIFICATION OF CHARACTERISTICS PER PB B1525

CRITICAL	NONE
MAJOR	NONE
MINOR	ALL OTHER CHARACTERISTICS

Pitney Bowes

DRAWING STANDARDS PER ASME Y14.5M-1994

DO NOT SCALE THIS DRAWING | DWG SIZE C

TITLE ASSY, MAIN ELECTRICAL ENCLOSURE

MATERIAL See Bill of Material | THIRD ANGLE PROJECTION

FINISH NONE | PCN NONE

HEAT TREAT NONE | SCALE NONE

DWG NO. 16021-105

SHEET 5 OF 12 | REV G.2

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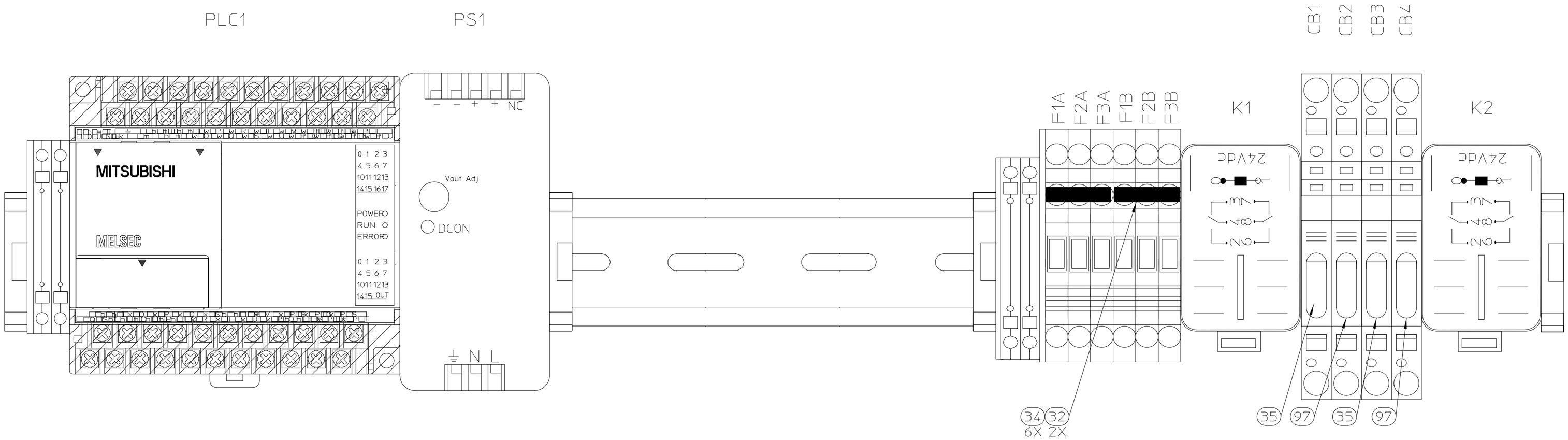

FOR MANUFACTURING PURPOSES ONLY

ITEM NO.	QTY	DESCRIPTION
15	1	End stop terminal
20	1	Relay, DPDT,30A, 24DC, W/ Dinrail base
21	4	Spring cage, terminal block, Breaker
20	1	Relay, DPDT,30A, 24DC, W/ Dinrail base
13	6	Terminal, 3 wire fuse disconect
16	1	Terminal cover, 3 wire fuse disconect
14	2	Spring ground terminal
18	1	Terminal cover, ground spring
15	1	End stop terminal
15	1	End stop terminal
24	1	Power Supply, 24 Volt 1.25A, DC
23	1	PLC
14	2	Spring ground terminal
18	1	Terminal cover, ground spring
15	1	End stop terminal

TERMINAL BLOCK 2 LAYOUT (LEFT TO RIGHT)

Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE B1850	CLASSIFICATION OF CHARACTERISTICS PER PB B1525	
TOLERANCES THREE PLACE DECIMALS ± .005 TWO PLACE DECIMALS ± .01 ONE PLACE DECIMALS ± .03	CRITICAL	NONE
	MAJOR	NONE
	MINOR	ALL OTHER CHARACTERISTICS
Pitney Bowes	DRAWING STANDARDS PER ASME Y14.5M-1994	
	DO NOT SCALE THIS DRAWING	DWG SIZE C

TITLE ASSY, MAIN ELECTRICAL ENCLOSURE

MATERIAL See Bill of Material		THIRD ANGLE PROJECTION
FINISH NONE	PCN NONE	DWG NO. 16021-105
HEAT TREAT NONE	SCALE NONE	SHEET 6 OF 12 REV G.2

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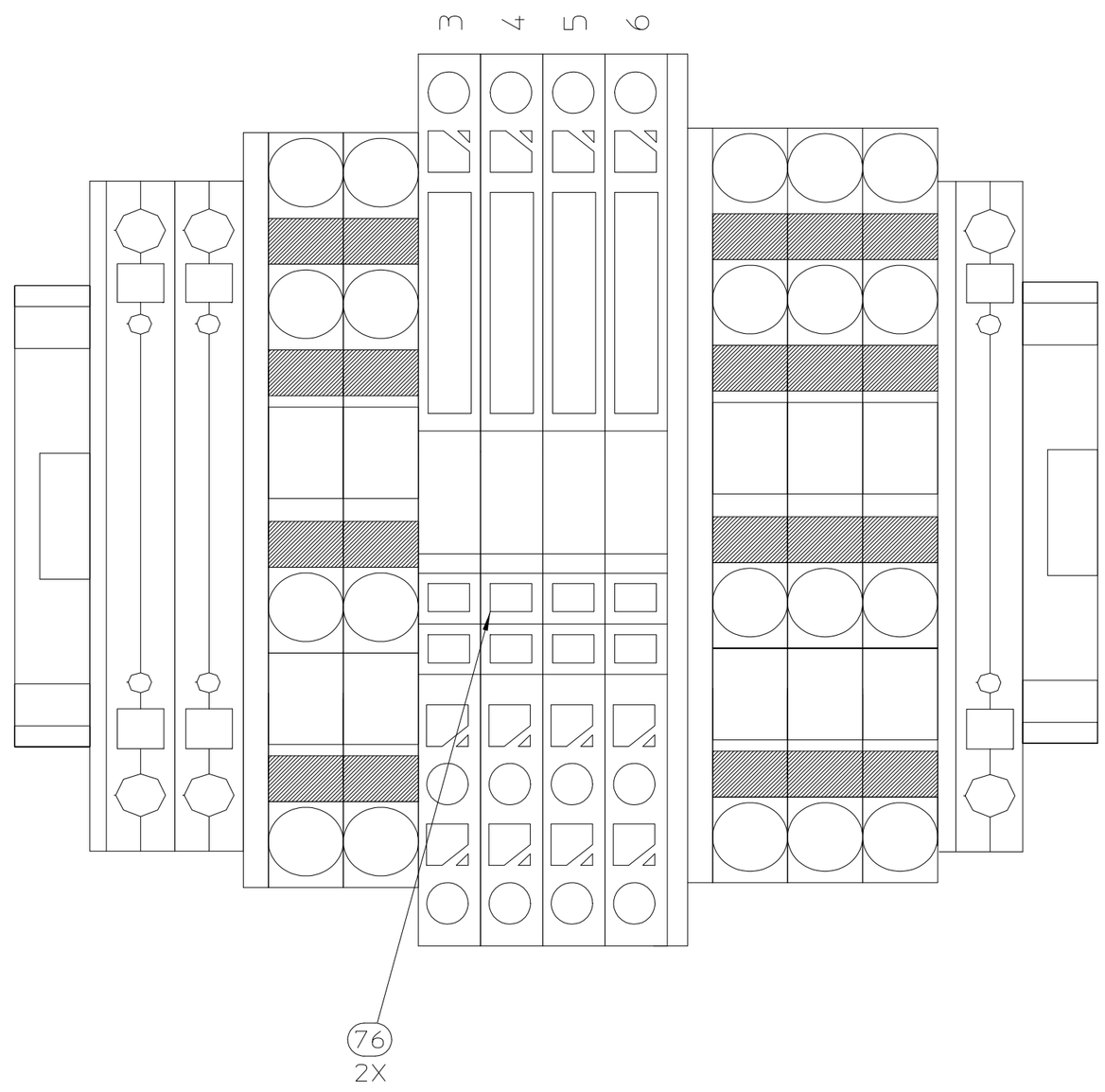
XXX	XX	SEE PAGE 1.	XX	ddMMMyy

TB1



FOR MANUFACTURING PURPOSES ONLY

ITEM NO.	QTY	DESCRIPTION
15	1	END STOP TERMINAL
14	1	SPRING GROUND TERMINAL
18	1	END COVER, GROUND TERMINAL
12	3	TERMINAL, DBL LAYER SHORTED (4 WAY)
17	1	END COVER, DBL LAYER SHORTED (4 WAY)
78	1	SIDE COVER, DUAL TERMINAL BLOCK
77	4	TERMINAL BLOCK, DUAL, SPRING CAGE DISCONNECT
12	2	TERMINAL, DBL LAYER SHORTED (4 WAY)
17	1	END COVER, DBL LAYER SHORTED (4 WAY)
14	2	SPRING GROUND TERMINAL
18	1	END COVER, GROUND TERMINAL
15	1	END STOP TERMINAL

TERMINAL BLOCK LAYOUT (LEFT TO RIGHT)

Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE B1850	CLASSIFICATION OF CHARACTERISTICS PER PB B1525	
TOLERANCES THREE PLACE DECIMALS ± .005 TWO PLACE DECIMALS ± .01 ONE PLACE DECIMALS ± .03	CRITICAL	NONE
	MAJOR	NONE
	MINOR	ALL OTHER CHARACTERISTICS
Pitney Bowes	DRAWING STANDARDS PER ASME Y14.5M-1994	
	DO NOT SCALE THIS DRAWING	DWG SIZE C
TITLE ASSY, MAIN ELECTRICAL ENCLOSURE		
MATERIAL See Bill of Material	THIRD ANGLE PROJECTION	
FINISH NONE / PCN NONE	DWG NO. 16021-105	
HEAT TREAT NONE / SCALE NONE	SHEET 7 OF 12	REV G.2

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REF.
XXXXXXX

LOC	SYM	CHANGE DESCRIPTION, COMPLETED BY	CHANGE NOTICE	DATE
XXX	XX	SEE PAGE 1.	XX	dd mmm yy

NOT FOR VENDOR USE

16021-113 - ASSY, MOTOR

P22A 98003-071 98003-074 — J22A 98003-070 98003-073

U - BLK 1
V - RED 2
W - BLUE 3
PE - GR/YL 4

16021-146 - ASSY, MOTOR DRIVE CABLE, 36 IN

P22 98003-071 98003-074 — 98010-034 GRN, 98010-034 WHT, 98010-034 RED, 98010-034 BLK — J22 98003-070 98003-073

16021-110 - ASSY, VACUUM POWER CABLE

BRN, BLUE, GRN/YEL

VACUUM BLOWER TO BE WIRED SAME AS PRIMARY MACHINE VOLTAGE.

VACUUM BLOWER — 2TB1, 2TB2 — 18/3 Wht, 18/3 Blk

16021-111 - ASSY, THERMAL OVERLOAD CABLE

P19 98016-029 98016-059 X2 — J19 98016-027 X2

P18 98016-001 98016-026 X3 — J18 98016-011 98016-027 X2

P23 98003-070 98003-072 — J23 98003-071 98003-074

P5 98016-002 98016-028 X3 — J5 98016-011 98016-027 X3

P8 98002-036 DRYER JAM PHOTO — J8 98002-026 DRYER JAM CABLE

P9 98002-021 PRINT JAM PHOTO — J9 98002-026 PRINT JAM CABLE

P24 98002-036 DWTR ENTRY JAM PHOTO — J24 98002-026 DWTR ENTRY JAM CABLE

P25 98002-036 2_DRYER JAM PHOTO — J25 98002-026 2_DRYER JAM CABLE

J5 98016-011 98016-027 X3 — NOT FOR VENDOR USE BASE TO BASE START/STOP/JOG (UPSTREAM)

TB3.26(D5) WHT/BLU 22G 1
TB3.27(D5) WHT/BLU 22G 2
TB3.28(D6) WHT/BLU 22G 3
TB.0V WHT/BLU 22G 4

J6 98016-011 98016-027 X3 — NOT FOR VENDOR USE BASE TO BASE START/STOP/JOG (DOWNSTREAM)

TB3.26(D5) WHT/BLU 22G 1
TB3.27(D5) WHT/BLU 22G 2
TB3.28(D6) WHT/BLU 22G 3
TB.0V WHT/BLU 22G 4

J17 98016-091 98016-027 X14 — NOT FOR VENDOR USE TO OPERATOR PANEL 16021-104

BLUE 22G 1 START/STOP LED
BLUE 22G 2 RS1
BLUE 22G 3 RS1
TB3.16(BIE7) WHT/BLU 22G 4 RESET BUTTON
TB3.28(D6) WHT/BLU 22G 5 JOG BUTTON
TB3.27(D5) WHT/BLU 22G 6 STOP BUTTON
TB3.26(D5) WHT/BLU 22G 7 START BUTTON
TB3.29(BID7) WHT/BLU 22G 8 RESET BUTTON
VIO 18G 9
TB3.12B WHT/BLK 22G 10 GAP POT
WHT/BLK 22G 11
WHT/VIO 22G 12
WHT/BLK 22G 13 BASE POT
WHT/BLK 22G 14

J16 98016-103 98016-027 X11 — NOT FOR VENDOR USE TO OPERATOR PANEL 16021-104

TB3.24B WHT/BLU 22G 1 ESTOP BUTTON
TB3.20A WHT/BLU 22G 2
TB3.20B WHT/BLU 22G 3 RESET BUTTON
TB.0V WHT/BLK 22G 4
TB.0V WHT/BLU 22G 5 FEEDER BUTTON
WHT/BLU 22G 6
TB3.18(ID8) WHT/BLU 22G 7 ESTOP BUTTON
TB3.29B(ID7) WHT/BLU 22G 8
9
WHT/BLU 22G TO PLC.Y7 10 FEEDER LED
TB.24V BLUE 22G 11
TB.0V WHT/BLU 22G 12 START/STOP BUTTON
13
14
15
16
17
18
19
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23
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37

NOT FOR VENDOR USE TO OPERATOR PANEL 16021-104

J7 98003-018 — NOT FOR VENDOR USE TO DRYER

98010-254
TO PLC.Y5 BROWN 18/3 — 1
TO MTR1A BLUE 18/3 — 2

J15 98016-093 98016-027 X9 — NOT FOR VENDOR USE SIGNAL PASSTHRU

J11 98016-093 98016-027 X9 — WHT/BLK 22G ×9

J4 98016-093 98016-027 X6 — NOT FOR VENDOR USE DIVERT FRONT

6 WHT/BLU 22G TO TB3.18A
5 WHT/BLU 22G TO TB3.17A
4 WHT/BLU 22G
3 BLUE 22G — TB.24V
2 WHT/BLU 22G TO TB.0V
1 BLUE 22G

J13 98016-011 98016-027 X4 — NOT FOR VENDOR USE DIVERT INSIDE

1 MOCON SIG. BLUE 22G
2 MOCON COM. WHT/BLU 22G
3 SOLENOID BLUE 22G — TB.24V
4 SOLENOID SIG. WHT/BLU 22G

J3 98016-093 98016-027 X6 — NOT FOR VENDOR USE DIVERT REAR

1 BLUE 22G
2 WHT/BLU 22G — TB.0V
3 BLUE 22G — TB.24V
4 WHT/BLU 22G — TB3.22G
5 WHT/BLU 22G TO TB3.17A
6 WHT/BLU 22G TO TB3.16A
7
8
9

J10 98016-093 98016-027 X8 — NOT FOR VENDOR USE PRINTER INTERFACE

1 BLUE 22G — TB.24V
2 WHT/BLU 22G — TB.0V
3 DIVERT SIG. INPUT WHT/BLU 22G
4 SORT SIG. INPUT WHT/BLU 22G
5 5-24 VDC COM BLUE 22G
6 FEEDER PAUSE INPUT WHT/BLU 22G
7
8 PRINT EYE OUT WHT/RED 22G
9 0VDC SUPPLY WHT/BLU 22G

98002-039 — W3 98010-253 — U3 98010-253 — V3 98010-253 — PE 98010-253 GRN/YEL — 98010-034 BLK

MTR1 98013-133 — PE W V U — L1 L2 P/+ PR — K2 98002-060 — PE

NOT FOR VENDOR USE TO VENDOR OPTION.

F3A 3.15A — F3B 3.15A — BLK 12G

L1 — LF1 98020-104 — TB1.1 — %1 — F1A 1.25 A — F1B 1.25 A — %1 BLK 16G — PS1 98011-018 — 98001-138 — 24V Ø1.25A — BLUE 18G — WHT/BLU 18G — F4 1.25 A — TB.0V — PE — BLUE 18G — TB3.24A

L2 — TB1.2 — %2 — F2A 1.25 A — F2B 1.25 A — %2 BLK 16G — 98001-138 — PLC1 98013-054 24V 0V — F5 500mA — WHT/BLU 18G — TB.0V — TB3.24A

JUMPERS SHOWN IN 230 V~ (primaries in series)

TB1 — T1 98008-026 — BK/H1 RD/X1 7 — WH/H2 BU/X2 9 — BN/H3 GY/X3 — OR/H4 YL/X4 8 — %VA

JUMPERS SHOWN IN 115 V~ (primaries in parallel)

TB1 — T1 98008-026 — BK/H1 RD/X1 7 — WH/H2 BU/X2 9 — BN/H3 GY/X3 — OR/H4 YL/X4 8 — %VA

LF2 98020-107 — 3L14 P BLK 16G — 3L7A N BLK 16G — DBR1 98013-151 NOT FOR VENDOR USE NOTE 14

BLK 16G 2L1B — BLK 16G 2L2B — 3L1B BLK 16G — 3L2B BLK 16G — GRN/YEL 16G

K1 98002-060 — 2L1A BLK 16G — 2L2A BLK 16G — CB1 4A — CB3 4A — CB2 6A — CB4 6A — BLK 16G %1 — BLK 16G %2

CR1 98002-058 — A2 WHT/BLU 18G — A1 BLUE 18G — TB3.24A — TB3.17B — TB3.16B — WHT/BLU 18G J2.28, J1.28, J2.19, J17.4

CR3 98002-058 — A2 WHT/BLU 18G — A1 BLUE 18G — TB3.15A — TB3.10D — K2 98002-060 — TB3.25A — WHT/BLU 18G J17.8, J16.8, J1.29, J2.29 — TB3.29B — TB3.30B

CR4 98002-058 — A2 WHT/BLU 18G — A1 BLUE 18G — TB3.20B WHT/BLU 22G — TB3.23A — C1 98020-036 — D1 98020-031 — K1 98002-060 — R1 98002-038 — TB.24V — TB.0V

OPTO4 DIVERT 98002-049 — R2 98020-045 SEE NOTE 11 — WHT/BLU 22G — TB.0V

OPTO3 SORT 98002-049 — BLUE 22G

Opto1 Feeder Pouse 98002-048 — WHT/BLU 22G — TB.0V

Opto2 Print Trigger 98002-048 — WHT/BLU 22G — TB.0V

WHT/BLU 22G TO J16.7 — WHT/BLU 22G — TB3.18A — TB3.17A — TB3.16A — WHT/BLU 22G

J2.16 WHT/VIO 22G — TB3.8B — RS1 98000-121 LOCAL/SPEED FOLLOW SWITCH 1A — 1B — WHT/VIO 22G

PLC.Y6(B4) WHT/BLU 18G — TB3.30A

TB3.14A — TO TB3.4A

MTR1 98013-133 — TB3 — 4 5 2 10 RUN SE PC — WHT/BLK 22G — WHT/BLU 22G — WHT/VIO 22G — AM RM RM PL STF STF SD SD — VIO 18G — TB3.13A — VIO 18G TO J2.25 — TB3.29A — VIO 18G TO J1.25

TB1 — K C J G J C K — PE PE — TB2 A B C — TB.0V

WHT/BLU 18G — TB3.18B — CR2 11 14 12

PLC1 98013-054 — FEEDER STOP X13 J13 — E-STOP X14 J33 — REMOTE RUN X13 — PRINT PHOTO EYE X12 — EMPTY PHOTO EYE X11 — JOG X7 — STOP X6 — START X5 — DRYER ENTRY JAM DETECT X4 — DUAL DRYER JAM DETECT X3 — X2 X1 X0 — S/S — TB3.13B — TB3.24V — WHT/BLU 18G TB3.8A(A12) — JK3 J17.5 TB3.2C — JK3 J17.3 TB3.2D — JK2 J17.4 TB3.2A — JK1 J17.2 TB3.2B — JK1 J17.1 TB3.2C — WHT/BLU 18G

PLC1 98013-054 — X0 COM2 Y2 COM0 Y0 COM1 Y1 COM3 Y3 Y4 COM4 Y5 Y6 Y7 COM5 Y10 Y11 24V 0V — WHT/BLU 18G — BLUE 18G — BLUE 22G — BRN 19(F3) — TB3.30A(E3) WHT/BLU 18G — WHT/BLU 18G TO J16.10 — BLUE 18G TO PS.IN(E8) — CR2 A1 A2 WHT/BLU 18G — TB.24V — TB.0V

TB3.4B — TB3.4A — TB3.4B — TB3.3A — TB3.1B — TB3.2A — TB.PE — TB3.1A — WHT/BLK 22G

TB3.8B — WHT/BLU 22G — TB.0V

CR4 98002-058 — CR3 98002-058 — TB3.28 — TB3.19B — TB3.19A — WHT/BLU 18G

PE — GRN/YEL 18G

J1 98016-027 X34 — NOT FOR VENDOR USE FEEDER (UPSTREAM)

J2 98016-027 X34 — NOT FOR VENDOR USE CONVEYOR (DOWNSTREAM)

Dwg Status: PRODUCTION		
APP BY	APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE 81850	CLASSIFICATION OF CHARACTERISTICS PER PB 81525	
TOLERANCES THREE PLACE DECIMALS ±.005; TWO PLACE DECIMALS ±.01; ONE PLACE DECIMALS ±.03	CRITICAL	NONE
	MAJOR	NONE
	MINOR	ALL OTHER CHARACTERISTICS
Pitney Bowes	DRAWING STANDARDS PER ASME Y14.5M-1994	
	DO NOT SCALE THIS DRAWING	DWG SIZE E
TITLE ASSY, MAIN ELECTRICAL ENCLOSURE		
MATERIAL See Bill of Material	THIRD ANGLE PROJECTION	
FINISH NONE	PCN NONE	DWG NO. 16021-105
HEAT TREAT NONE	SCALE NONE	SHEET 8 OF 12 REV G.2

format_E_DEC10

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REF
XXXXXXX

LOC	SYM	CHANGE DESCRIPTION, COMPLETED BY	CHANGE NOTICE	DATE
XXX	XX	X	XX	ddMMMyy

FOLD

NOT FOR VENDOR USE

J12
98003-049

L G N

PE

120VAC, 3.15A LABEL TO BE PLACED OUTSIDE OF ENCLOSURE. SEE BELOW FOR LABEL PLACEMENT. USE LABEL P/N 16015-038.

TO F3A.1

TO F3B.1

FRONT SIDE

LEFT SIDE

NOTE 3
PLACE VENDOR LABEL IN AREA SHOWN, ON THE INSIDE OF THE ENCLOSURE.

J7 P8

J5 P24 G

J3 P25 G

J2

120

104

NOTE 10

RoHS

NOT FOR VENDOR
PLACE DMS LABEL IN AREA SHOWN, ON THE OUTSIDE OF THE ENCLOSURE.

119

99

PLACE GROUND LABEL ON THE INSIDE OF THE ENCLOSURE BY STUD.

91

RIGHT SIDE

RS1

P9

J6

J4

J1

J10

J11

120VAC/ 3.15A

J12

PLACE GROUND LABEL ON THE OUTSIDE BY STUD.

99

FOLD

Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE

UNLESS OTHERWISE SPECIFIED:
WORKMANSHIP PER PB PROCEDURE B1850

TOLERANCES
THREE PLACE DECIMALS ± .005
TWO PLACE DECIMALS ± .01
ONE PLACE DECIMALS ± .03

CLASSIFICATION OF CHARACTERISTICS PER PB B1525

CRITICAL	NONE
MAJOR	NONE
MINOR	ALL OTHER CHARACTERISTICS

Pitney Bowes

DRAWING STANDARDS PER ASME Y14.5M-1994

DO NOT SCALE THIS DRAWING | DWG SIZE C

TITLE ASSY, MAIN ELECTRICAL ENCLOSURE

MATERIAL See Bill of Material | THIRD ANGLE PROJECTION

FINISH NONE | PCN NONE | DWG NO. 16021-105

HEAT TREAT NONE | SCALE NONE | SHEET 9 OF 12 | REV G.2

FOLD

format_c_dec10

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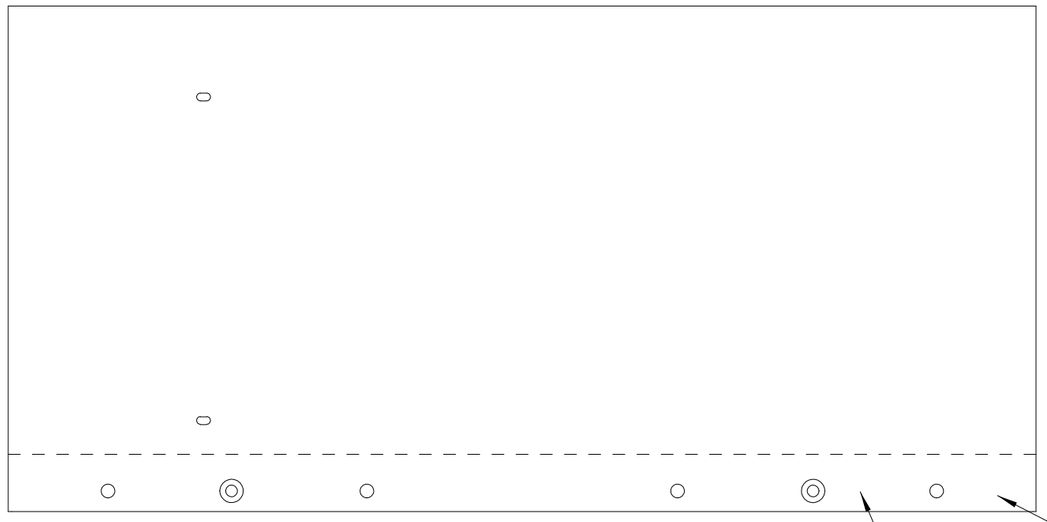
REF
XXXXXXX

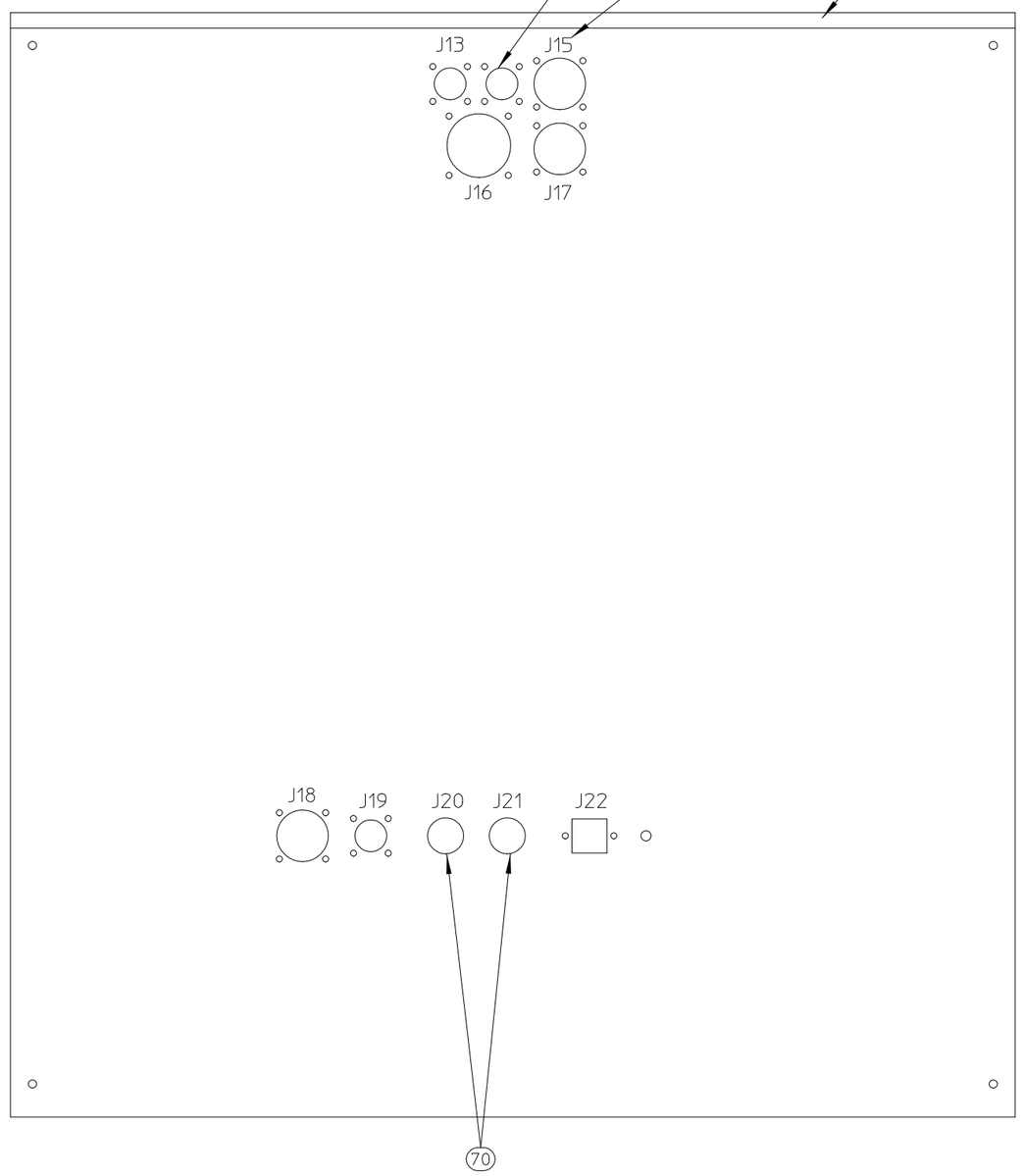
LOC	SYM	CHANGE DESCRIPTION, COMPLETED BY	CHANGE NOTICE	DATE
XXX	XX	X	XX	ddMMMyy

FOLD

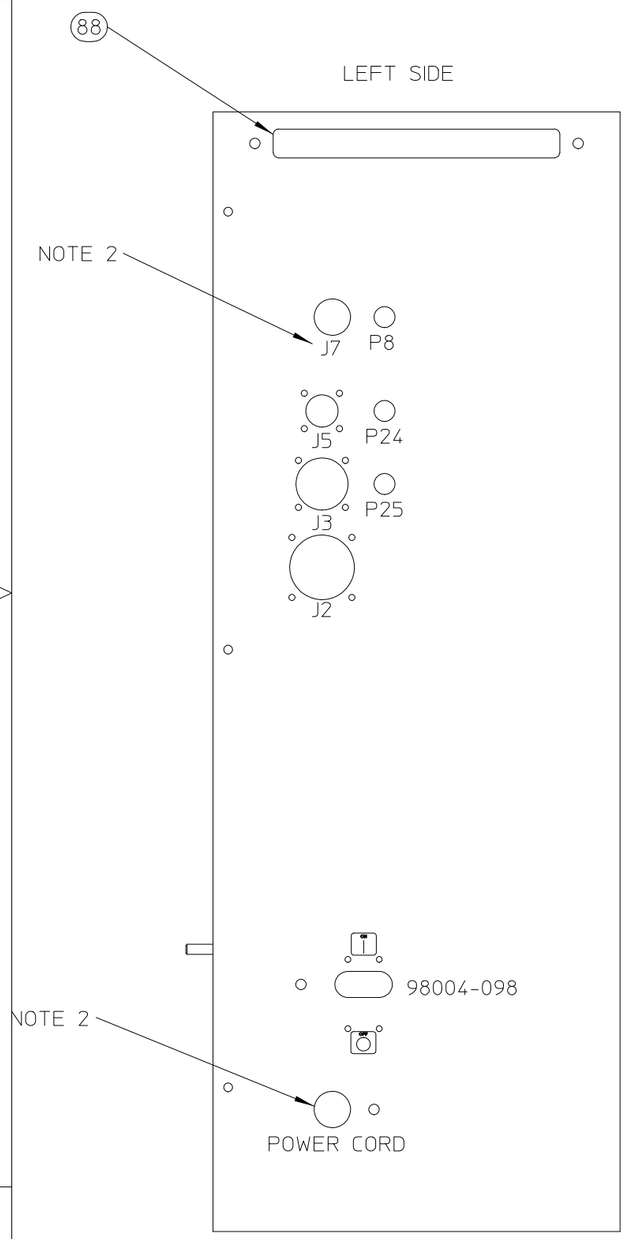
ENCLOSURE
TOP VIEW



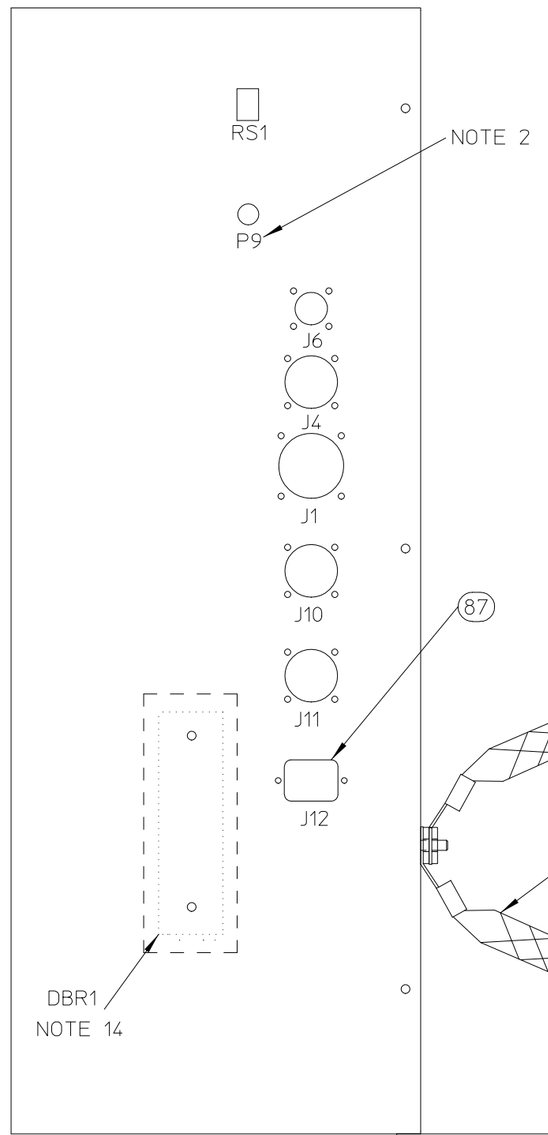
ENCLOSURE
FRONT VIEW
(INSIDE)

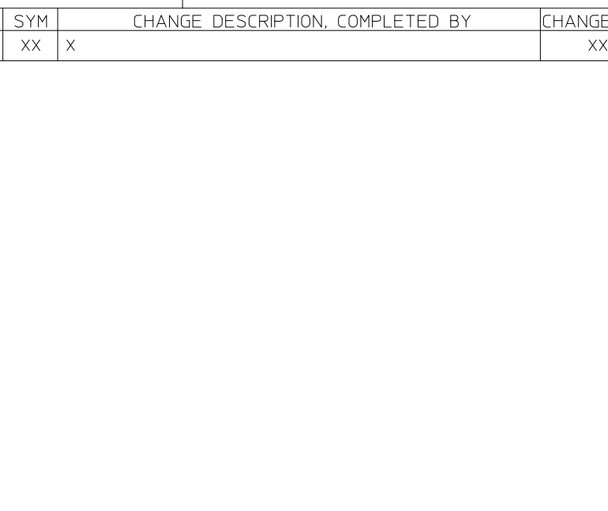


LEFT SIDE



RIGHT SIDE




PLACE 16021-142 FROM STUD TO DECK.
SEE PAGE 11 FOR GROUNDING
LOCATION ON DECK.
PLACE GROUND STRAP FROM
GROUND STUD TO VACUUM
ON BASE. SEE PAGE 12 FOR
STRAP DETAILS.

Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE B1850	CLASSIFICATION OF CHARACTERISTICS PER PB B1525	
TOLERANCES THREE PLACE DECIMALS ± .005 TWO PLACE DECIMALS ± .01 ONE PLACE DECIMALS ± .03	CRITICAL	NONE
	MAJOR	NONE
	MINOR	ALL OTHER CHARACTERISTICS

Pitney Bowes

DRAWING STANDARDS PER ASME Y14.5M-1994

DO NOT SCALE THIS DRAWING — DWG SIZE C

TITLE ASSY, MAIN ELECTRICAL ENCLOSURE

MATERIAL See Bill of Material — THIRD ANGLE PROJECTION

FINISH NONE	PCN NONE	DWG NO. 16021-105	
HEAT TREAT NONE	SCALE NONE	SHEET 10 OF 12	REV G.2

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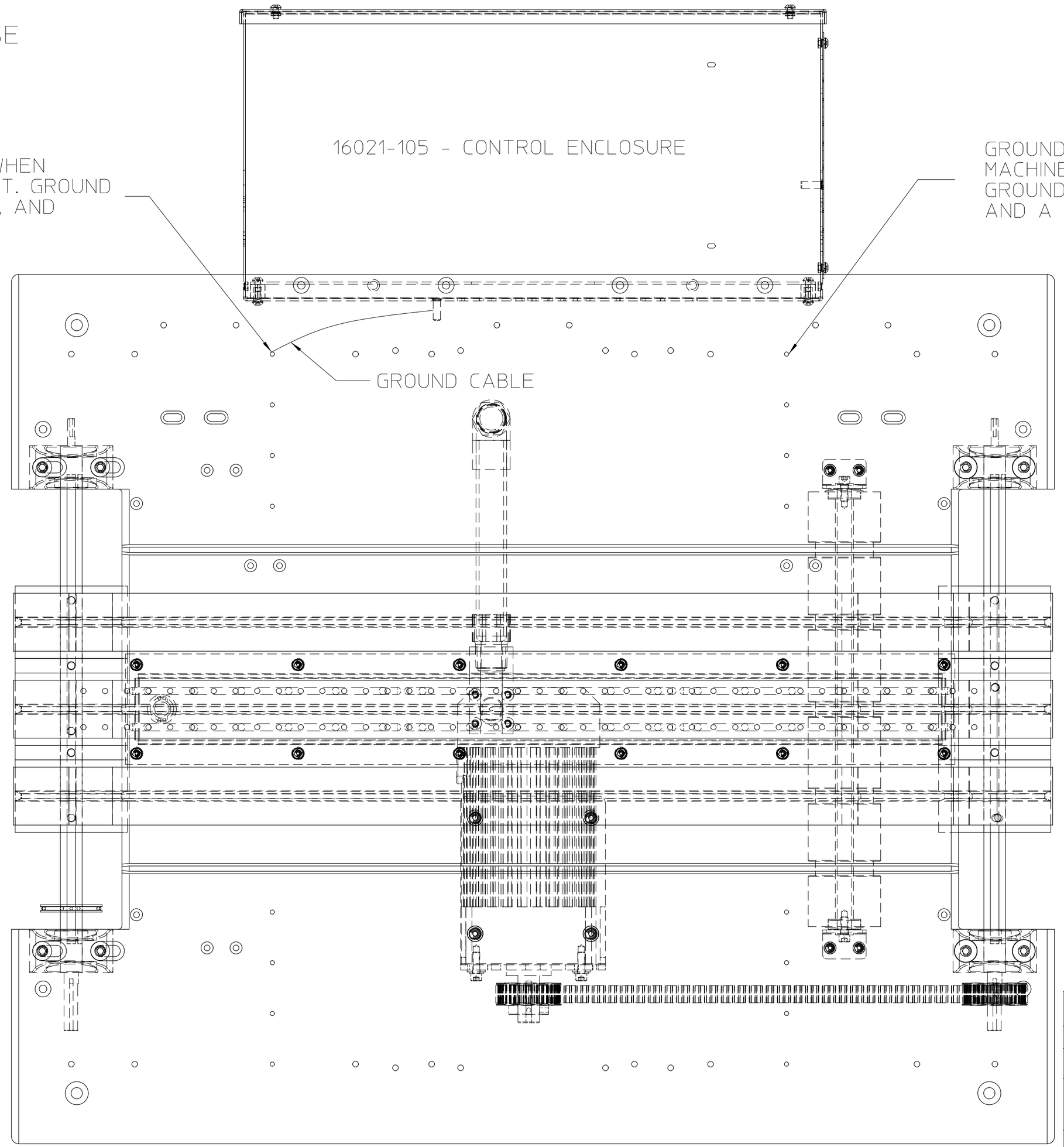
REF
XXXXXXX

LOC	SYM	CHANGE DESCRIPTION, COMPLETED BY	CHANGE NOTICE	DATE
XXX	XX	X	XX	ddMMMyy

NOT FOR VENDOR USE
SEE NOTE 13


16021-105 - CONTROL ENCLOSURE
GROUND TO DECK HERE WHEN MACHINE IS RIGHT TO LEFT. GROUND BY USING A 10-24 SCREW, AND A STAR WASHER.
GROUND TO DECK HERE WHEN MACHINE IS LEFT TO RIGHT (STANDARD). GROUND BY USING A 10-24 SCREW, AND A STAR WASHER.
GROUND CABLE

Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE B1850	CLASSIFICATION OF CHARACTERISTICS PER PB B1525	
TOLERANCES THREE PLACE DECIMALS ± .005 TWO PLACE DECIMALS ± .01 ONE PLACE DECIMALS ± .03	CRITICAL	NONE
	MAJOR	NONE
	MINOR	ALL OTHER CHARACTERISTICS

Pitney Bowes

DRAWING STANDARDS PER ASME Y14.5M-1994

DO NOT SCALE THIS DRAWING | DWG SIZE C

TITLE ASSY, MAIN ELECTRICAL ENCLOSURE

MATERIAL See Bill of Material | THIRD ANGLE PROJECTION

FINISH NONE | PCN NONE | DWG NO. 16021-105

HEAT TREAT NONE | SCALE NONE | SHEET 11 OF 12 | REV G.2

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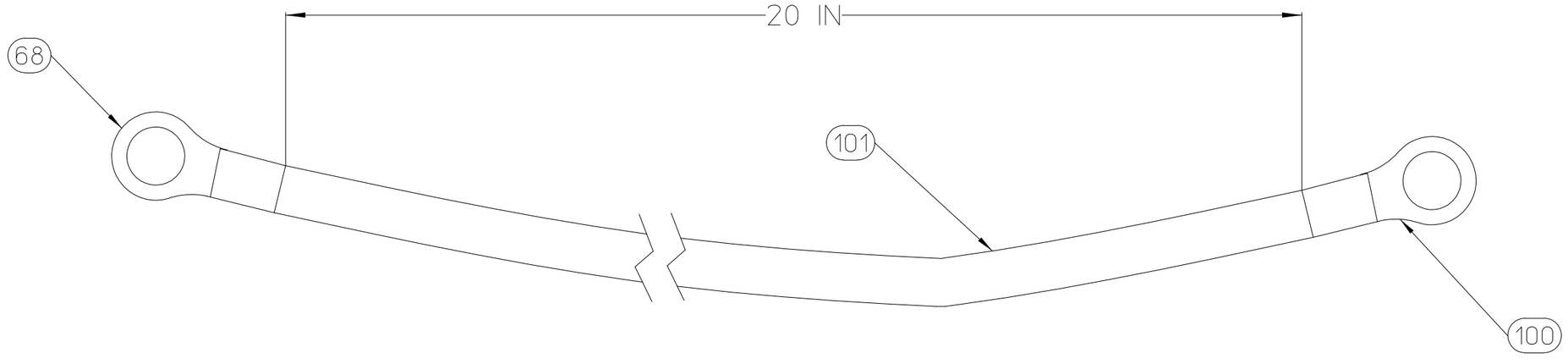
REF
XXXXXXX

LOC	SYM	CHANGE DESCRIPTION, COMPLETED BY	CHANGE NOTICE	DATE
XXX	XX	SEE PAGE 1.	XX	ddMMMyy



NOTES

1. UNLESS OTHERWISE SPECIFIED ALL WIRES ARE SHOWN ACTUAL LENGTH. DRAWING CONVENTIONS PER STANDARD ES1052.
2. UNLESS OTHERWISE SPECIFIED, TOLERANCE ON CUT WIRE LENGTHS SHALL BE AS FOLLOWS:

DIMENSION RANGE(IN.)	TOLERANCE(IN.)
1 TO 36	+/-0.25
ABOVE 36 TO 196	+1.0/-0.5

3. COMPLETED ASSEMBLY TO BE TESTED FOR CONTINUITY, OPEN, SHORTS, AND MISWIRES.
4. CRIMPS ON COMPLETED ASSY TO PASS A PULL TEST PER MANUFACTURER'S SPECS.
5. REFER TO MANUFACTURER'S SPECIFICATIONS FOR CONNECTOR PIN LAYOUT.

Dwg Status: PRODUCTION

APP BY	APP REV	APP DATE
UNLESS OTHERWISE SPECIFIED: WORKMANSHIP PER PB PROCEDURE B1850	CLASSIFICATION OF CHARACTERISTICS PER PB B1525	
TOLERANCES: THREE PLACE DECIMALS ± .005; TWO PLACE DECIMALS ± .01; ONE PLACE DECIMALS ± .03	CRITICAL	NONE
	MAJOR	NONE
	MINOR	ALL OTHER CHARACTERISTICS
Pitney Bowes	DRAWING STANDARDS PER ASME Y14.5M-1994	
	DO NOT SCALE THIS DRAWING	DWG SIZE C

TITLE ASSY, MAIN ELECTRICAL ENCLOSURE

MATERIAL See Bill of Material		THIRD ANGLE PROJECTION
FINISH NONE	PCN NONE	DWG NO. 16021-105
HEAT TREAT NONE	SCALE NONE	SHEET 12 OF 12 REV G.2

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Pitney Bowes
Direct Mail Solutions

Section VII

Trouble Shooting

APAS – 72

PRELIMINARY

Pitney Bowes
12050 49th STREET NORTH - CLEARWATER, FL. 33762-4301
PHONE: 727.571.3330 - FAX: 727.571.3443 - TOLL FREE: 1.800.INSERTER

Problem:	Things to Check:
No power to all components of the machine	Check Main Breaker Check power to the machine
No power to MTR1	Check CB1 & CB3 (4A)
No power to PLC	Check F2A, F2B, & F5
Main vacuum belt does not move	Check for power to MTR1 Check that K1 is on Check CB1 & CB3 (4A) Check PLC in Run Mode
Card Feeder is not feeding	Check Feeder On/Off Button (Lamp illuminated = On) Check Connection at Base Feeder needs to be full (Photocell Blocked) Check MTR1 if off , refer to “No Power to MTR1”
Base is not running	Check main disconnect is ON Check PLC switch to RUN – Lamp “RUN” is on. Check power to PLC, refer to “No Power PLC” Check Power to MTR1, refer to “No Power MTR1” Check input to X13, normal when lit. Check all stop buttons.
Vacuum Motor does not come on	Check that K2 is on Check CB2 & CB4 (6A)
Feeder will not run.	Check fuse condition. Check outlet power source. Check power switch.
Feeder runs but no material is being dispensed.	Check material supply. Remove all material and follow setup procedure. Check rollers and belts for excessive wear or dirt.
Feeder does not create a gap between pieces.	Lower separator adjustment and observe. If a gap is not present after this adjustment, return separator to original position and move the back guide forward. Lower rear elevator belts slightly.
Feeder does not detect material.	Adjust position of the sensor.
Thick material does not feed well.	Decrease the height at the back of the material stack. Increase the opening at the separation device (the thicker the material the less critical the setting is).
Thin material does not feed.	Adjust separation device as described in section 2. Remove material and fan the stack allowing air to separate the pieces. Raise the rear of the material stack by moving the wedge forward.

PRELIMINARY

Pitney Bowes
Direct Mail Solutions

PRELIMINARY